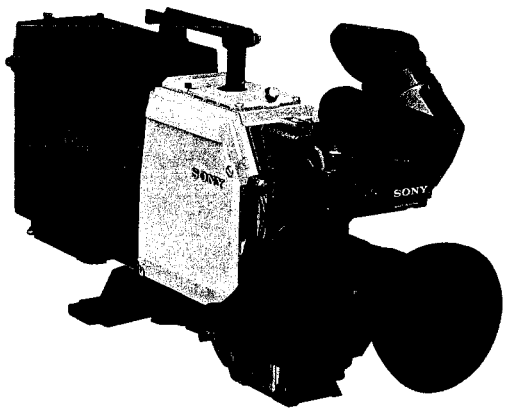
SONY®

COLOR VIDEO CAMERA

BVP-3AP



BETACAM™

OPERATION AND MAINTENANCE MANUAL

2nd Edition (Revised 5)

Serial No. 21901 and Higher

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SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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SECTION 1
OPERATION

The BVP-3AP is a compact and lightweight color video camera with a three-pickup tube system employing 2/3-inch Magnetic focus-Static deflection Saticon* tubes. When the BVP-3AP is used together with a BVV-1PS/BVV-1APS portable video cassette recorder, a Betacam system BVW-3P/BVW-3AP for ENG (Electronic News Gathering) is created, making it possible for camera recording to be done by a single person.

* Saticon is a trademark.

1-1. FEATURES

High quality picture

The Magnetic focus-Static deflection tubes have the following features and assure a high quality picture.

- The high resolution can be obtained at any portion on the screen.
- The deflection distortion is low and the precise registration is possible.
- The diode-gun Saticon (R) tubes and the high-voltage operation assure the clear picture.
- The signal is output through the connector pins and the first-stage FET is built-in the coil for the high signal-to-noise ratio.

Compact and lightweight

The magnesium diecast body is light and rigid. The compact design and lightweight makes the BVP-3AP easy-to-operate camera.

High sensitivity

The video output level can be raised by 9 dB or 18 dB. Even at the 18 dB position, a high quality picture is assured so that the recording under low light conditions will be possible.

Automatic white balance and black balance/preset white balance

The white balance and black balance can be automatically adjusted at each filter position, and the adjusted value is stored in the memory even when the power is turned off. When the WHITE BAL switch is set to PRESET, a white balance at 3200°K is obtained.

Automatic centering adjustment

Thanks to the newly developed automatic centering adjusting circuit, the centering can be easily adjusted without using the centering pattern. The adjusted value is stored in the memory even when the power is turned off.

Automatic beam-optimizer

An automatic beam-optimizer allows the camera to accept excessive light input of up to 8 times that of normal conditions without comet tail or blooming effects.

Wide dynamic range

The BVP-3AP has realized wide dynamic range to accept excessive light input of up to 6 times that of normal condition with the incorporated DCC (Dynamic Contrast Control) circuit.

Warning system

If there is a problem on the VTR or the tape or the battery is to end, the warning lamps in the viewfinder indicate it. When the BVP-3AP is used together with the BVV-1PS/BVV-1APS, the warning sound is heard and the tape remaining time indicators in the viewfinder will function.

Auto-close mechanism

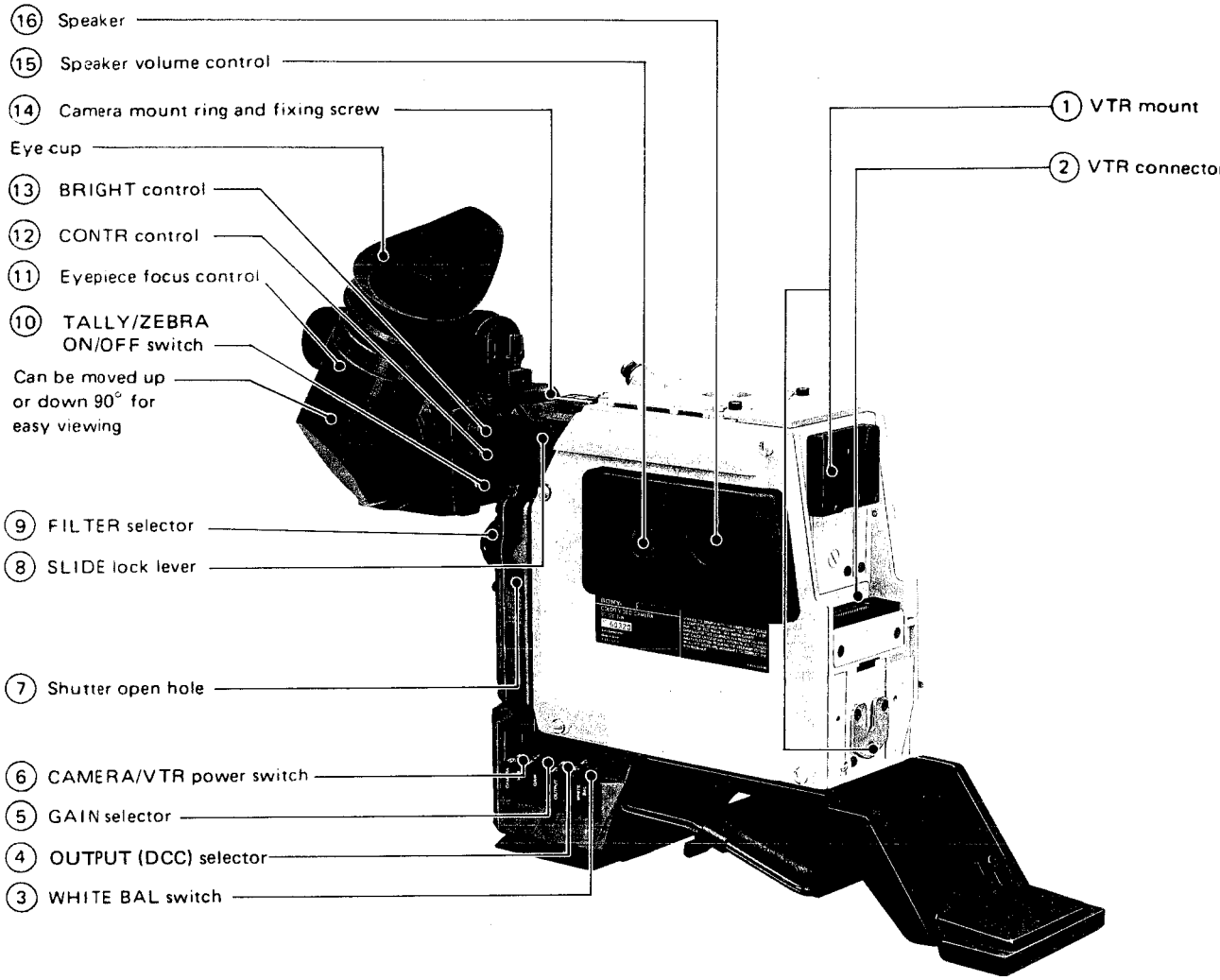
The shutter is automatically closed to protect the pickup tube in the following cases.

- When the CAMERA/VTR switch is set to PREHEAT
- When the OUTPUT switch is set to BARS
- While the automatic black balance adjustment is being performed
- When the test signal is output
- While the tape is being rewound

In addition to the above, the BVP-3AP has the following features.

- Low power consumption
- Colour framing pulse output when the camera is operating with the internal sync system.
- Gen lock function when the CA-3 or CA-30P camera adaptor is used
- 2 line image enhancer
- Shading compensator to use the lens extender
- Masking circuit
- Split color bar generator
- Sharp-directional microphone
- Automatic iris adjustment mechanism
- Video level indicator
- Adjusting the audio recording level of audio channel 1
- Zebra pattern ON/OFF switch
- Built-in monitor speaker
- Attaching an external microphone
- High resolution viewfinder

1-2. LOCATION AND FUNCTION OF PARTS



① VTR mount

Mount a BVV-1PS/BVV-1APS portable videocassette recorder, CA-3 or CA-30P camera adaptor, etc.

② VTR connector (50 pin)

Connect the 50-pin connector of the BVV-1PS/BVV-1APS videocassette rocorder, CA-3 or CA-30P camera adaptor, etc.

③ WHITE BAL (balance) switch

PRESET: The white balance is set at the factory to the value of 3200°K with the FILTER selector ⑨ set to "1", the white balance of the iodine lamp. Use this position when you have no time to adjust the white balance.

AUTO: Generally set to this position. When the AUTO W/B BAL switch ㉕ is set to WHT, the white balance will automatically adjusted and memorized. After the adjustment, the memorized white balance value is always obtained at this position.

④ OUTPUT (DCC) selector

Selects the signal output from the VTR connector ②, or TEST OUT connector ㉒ and to the viewfinder.

CAM: Signal picked up by the camera.

At the DCC ON position, the built-in DCC circuit functions.

When the DCC circuit is not used, set the selector to DCC OFF.

BARS (DCC OFF): Color bar signal. Set at this position to use the color bars to adjust the video monitor or to record the color bars.

⑤ GAIN selector

Generally set this selector to "0". When the selector is set to "9" or "18", the video output level will be raised by 9 dB or 18 dB respectively.

⑥ CAMERA/VTR power switch

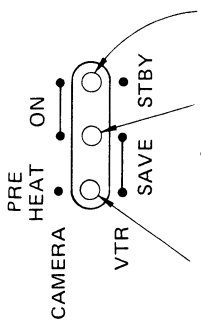
Turns on and off the power to the camera and the videocassette recorder.

CAMERA-PREHEAT: Power is supplied to the pickup tube and the heater of the picture tube in the viewfinder but the picture does not appear on the viewfinder screen. The power consumption is reduced at this position.

CAMERA-ON: The power is supplied to all part of the camera and the picture appears on the viewfinder screen.

VTR-SAVE: The head drum stops rotating and the tape is unthreaded. Because the power consumption is reduced at this position, the recording time will be longer.

VTR-STBY: The head drum starts rotating and the tape is threaded around the drum head.



Recording will begin when the VTR button is pressed.

Recording will begin when the VTR button is pressed.
The picture may show some instability at the point where the recording begins.

Recording cannot be done. Picture does not appear on the viewfinder screen.

⑦ Shutter open hole

This hole is equipped to force the shutter to open by breaking it when the shutter does not open in normal operation. If the shutter does not open during operating the camera, check that the power supply circuit works correctly and that the connections are correct. If the shutter still does not open after checking the above items, remove the rubber cap and push in a thin stick like a thin screwdriver, and the shutter will open.

After opening the shutter with this method, be sure to contact your Sony personnel.

⑧ SLIDE lock level

Turn the lever clockwise and the viewfinder is locked. Turn the lever counterclockwise to release the lock and the viewfinder can be moved horizontally to be adjusted the position for easy-viewing.

⑨ FILTER selector

Select the appropriate filter according to the lighting conditions.

Filter number	Color temperature	Lighting conditions
1	3200°K	sunrise, sunset, in a studio
2	5600°K + 1/4 ND*	bright outdoors
3	5600°K	cloudy or rainy outdoors
4	5600°K + 1/16 ND*	clear and bright scenery of snow, high mountains or seaside

* ND: neutral density filter

⑩ TALLY/ZEBRA ON/OFF switch

ZEBRA TALLY: The zebra pattern and tally lamp are turned on.

OFF: The zebra pattern and tally lamp are turned off.

ZEBRA: The zebra pattern is turned on, and the tally lamp is turned off.

⑪ Eyepiece focus control

Adjust this control so that the clearest picture can be obtained on the viewfinder screen.

- This control does not affect the output signal of the camera.

⑫ CONTR (contrast) control

Adjusts the contrast of the picture on the viewfinder screen.

- This control does not affect the output signal of the camera.

⑬ BRIGHT (brightness) control

Adjusts the brightness of the viewfinder screen. To obtain a brighter picture, turn this control clockwise.

- This control does not affect the output signal of the camera.

⑭ Camera mount ring and fixing screw

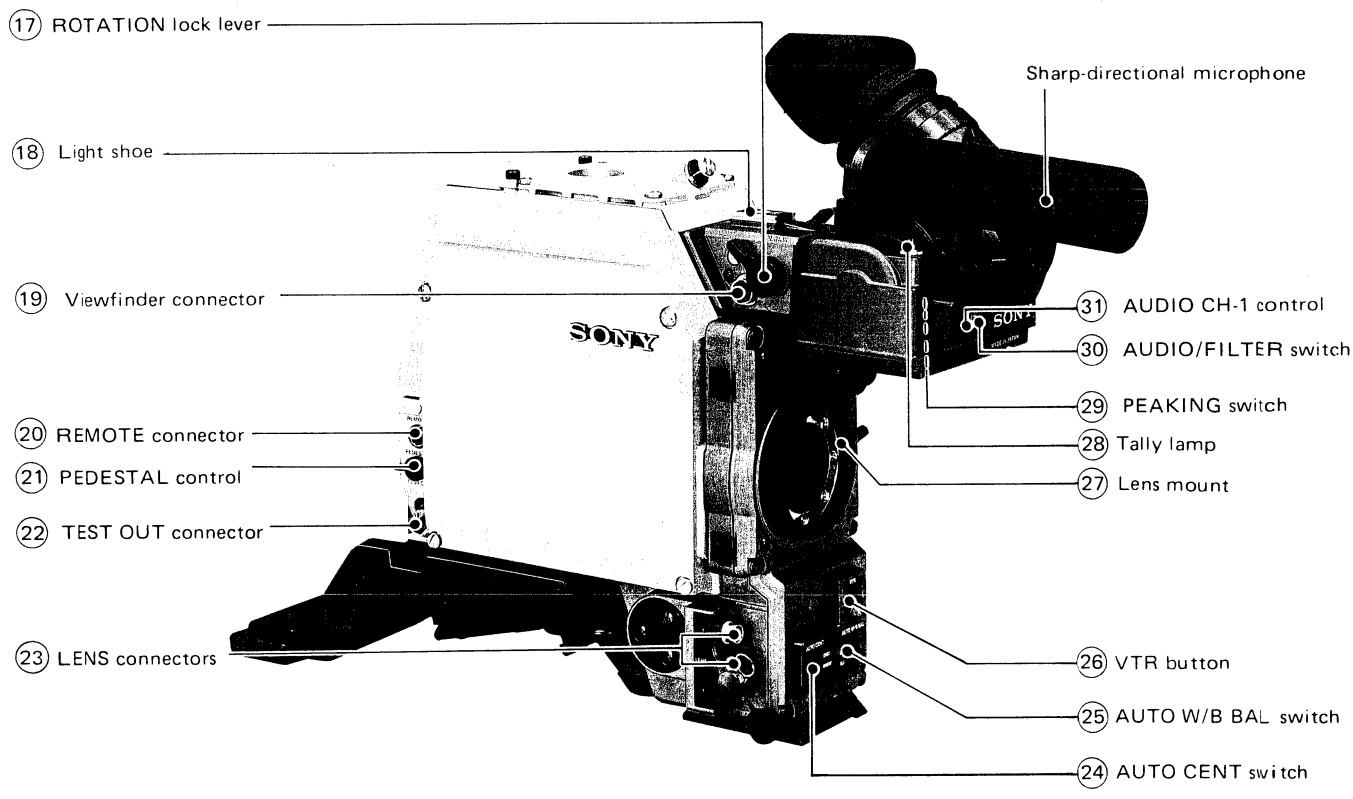
Generally do not remove the viewfinder from the camera. If it is unavoidable to remove the viewfinder, loosen the fixing screw and turn the mount ring clockwise from the lens side, and pull the viewfinder. To mount the viewfinder again, turn the mount ring counterclockwise and be sure to fasten it with the fixing screw securely.

⑮ Speaker volume control

Adjusts the sound level from the speaker. Turning the control to clockwise increases the sound volume. At the fully counterclockwise position, no sound can be heard.

⑯ Speaker

During recording, simultaneous playback sound (mixed sound of the audio channels 1 and 2) can be monitored. In other mode, the E-to-E sound selected on the VTR can be heard. The sound corresponding to the warning lamps is also heard.



(17) ROTATION lock lever

Turn the lever down to lock the viewfinder. Turn the lever counter-clockwise to release the lock, and the viewfinder can be rotated.

(18) Light shoe

Attach a video light, etc.

(19) Viewfinder connector (12 pin)

Connect a BVF-50 viewfinder.

- When a viewfinder is connected to this connector, be sure to remove the supplied 1.5-inch viewfinder from the camera. Do not connect two viewfinders simultaneously.

(20) REMOTE connector (6 pin)

Connect the appropriate equipment to remotely control the fine adjustment of the iris, pedestal level and gain.

(21) PEDESTAL control

Adjusts the pedestal level.

(22) TEST OUT connector (BNC type)

The following signals selected by the ENC/REG switch on the built-in circuit board will be output.

REG: R, G, B, R–G or B–G test signal selected by the R/OFF/B and the G/OFF/–G switches is output.

ENC: Encoded video signal is output. Usually use this position.

(23) LENS connectors (6 pin, 12 pin)

Connect a cable of the lens to the appropriate connector, 6 pin or 12 pin.

For details on the usable lenses, consult your Sony personnel.

㉔ AUTO CENT (automatic centering adjustment) switch

PRESET: Use this position when the memorized centering value is not used.

MEMORY: Use this position when the memorized centering value is used after the automatic centering adjustment.

START: For automatic centering adjustment, point the camera to an appropriate object and set this switch to START. The switch automatically returns to the center position when the switch is released.

㉕ AUTO W/B BAL (automatic white/black balance adjustment) switch

WHT: For automatic white balance adjustment, set the WHITE BAL switch ③ to AUTO and set this switch to WHT. The adjusted value will be automatically memorized.

BLK: For automatic black balance and black set level adjustment, set this switch to BLK. The adjusted value will be automatically memorized.

- The switch automatically returns to the center position when it is released after setting the switch to WHT or BLK.

㉖ VTR button

Press to start recording. To stop, press this button again. This button functions the same as the VTR button on the lens. To use this button, remove the cover.

㉗ Lens mount (special bayonet type)

Attach the lens.

㉘ Tally lamp

This lamp lights or blinks when the REC lamp on the viewfinder lights or blinks.

㉙ PEAKING switch

The outline of the picture on the viewfinder is enhanced so that the focus can easily be adjusted. Every time the switch is pressed, the function is turned on and off alternately.

㉚ AUDIO/FILTER switch*

AUDIO: Use this position when the recording level of audio channel 1 is adjusted by the AUDIO CH-1 control. The FILTER/AUDIO indicator in the viewfinder shows the audio recording level.

FILTER: The FILTER/AUDIO indicator in the viewfinder shows the number of the filter selected by the FILTER selector. When the camera is used together with the machine except for the BVV-1PS with the serial No. 50000 or higher or BVV-1APS, be sure to set the switch to this position.

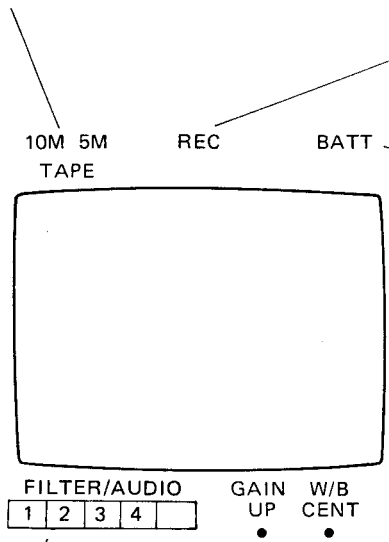
㉛ AUDIO CH-1 (auido channel-1 recording level) control*

When the AUDIO CH-1 MANU/AUTO selector on the BVV-1PS/BVV-1APS is set to MANU and the AUDIO/FILTER switch ㉚ is set to AUDIO, the recording level of audio channel-1 can be adjusted manually. Adjust the level during observing the FILTER/AUDIO indicator in the viewfinder.

* These switch and control are effective only when the BVP-3AP is used together with the BVV-1PS with the serial No. 50000 or higher or with the BVV-1APS.

Indicators in the viewfinder

Tape remaining time indicators
Show in minutes the amount of tape remaining for recording. These indicators function only when the BVP-3AP and the BVV-1PS/BVV-1APS are directly connected with the 50-pin connectors.



REC (recording) indicator (red)
Lights during recording, and blinks when one of the warning lamps on the BVV-1PS/BVV-1APS blinks or lights. For details, refer to the instruction manual furnished with the connected VTR.

BATT (battery) indicator (red)
The indicator starts blinking several minutes before the battery is discharged to the level which cannot perform the operation of the camera, and keep lighting at that level.

W/B CENT (white balance/black balance/centering) indicator (orange)
Lights when the automatic white balance, black balance and centering adjustment has been completed and goes off after 5 seconds. If the automatic adjustment cannot be done, the indicator blinks for about 5 seconds.

GAIN UP indicator
Lights when the GAIN selector is set to "9" or "18".

FILTER/AUDIO indicator
When the AUDIO/FILTER switch is set to AUDIO, the audio level is indicated. When the switch is set to FILTER, the number of the filter selected by the FILTER selector lights.

Tape remaining time indicators and the remaining time

These indicators function only when the BVP-3AP and the BVV-1PS/BVV-1APS are directly connected with the 50-pin connectors.

Remaining time (minutes)	20	15	10	5	2	0
Indicators	10M 5M	10M	5M	5M		
REC indicator	REC				REC*	

: Blinks in 1 Hz interval

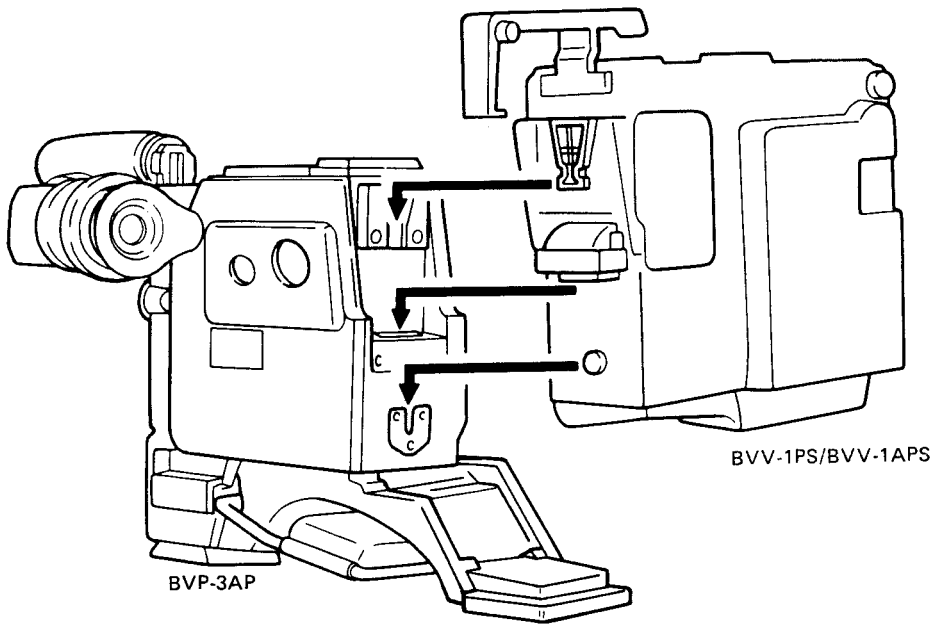
* : Blinks in 4 Hz interval

1-3. SET-UP

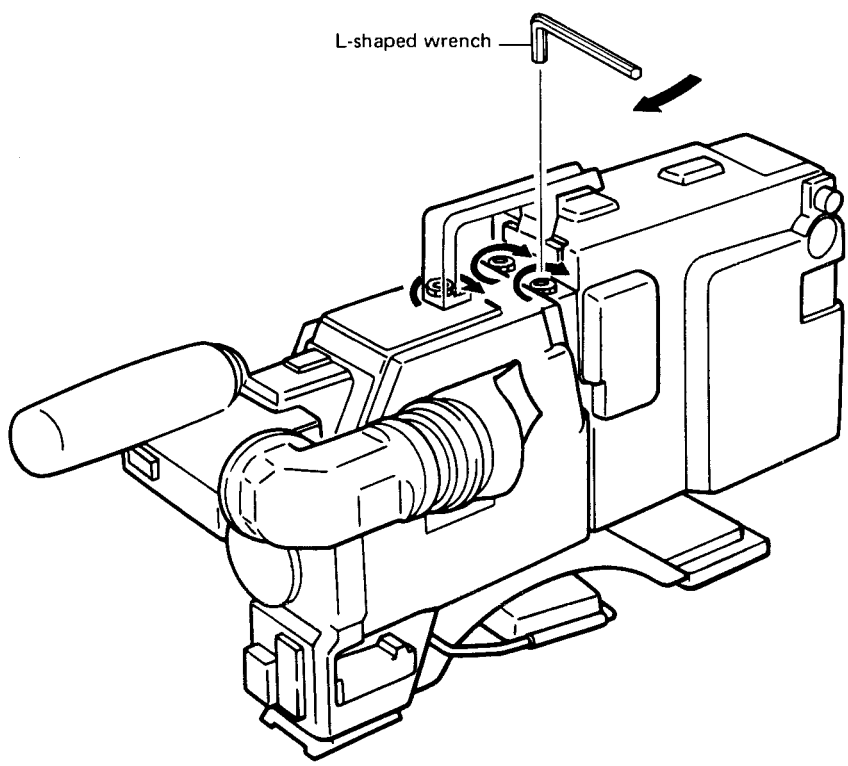
1-3-1. Set up with the BVV-1PS/BVV-1APS VTR

The following shows an example of how to set up the BVP-3AP and the BVV-1PS/BVV-1APS portable videocassette recorder. To set up the BVP-3AP with another unit, refer to the instruction manual furnished with each unit.

1.

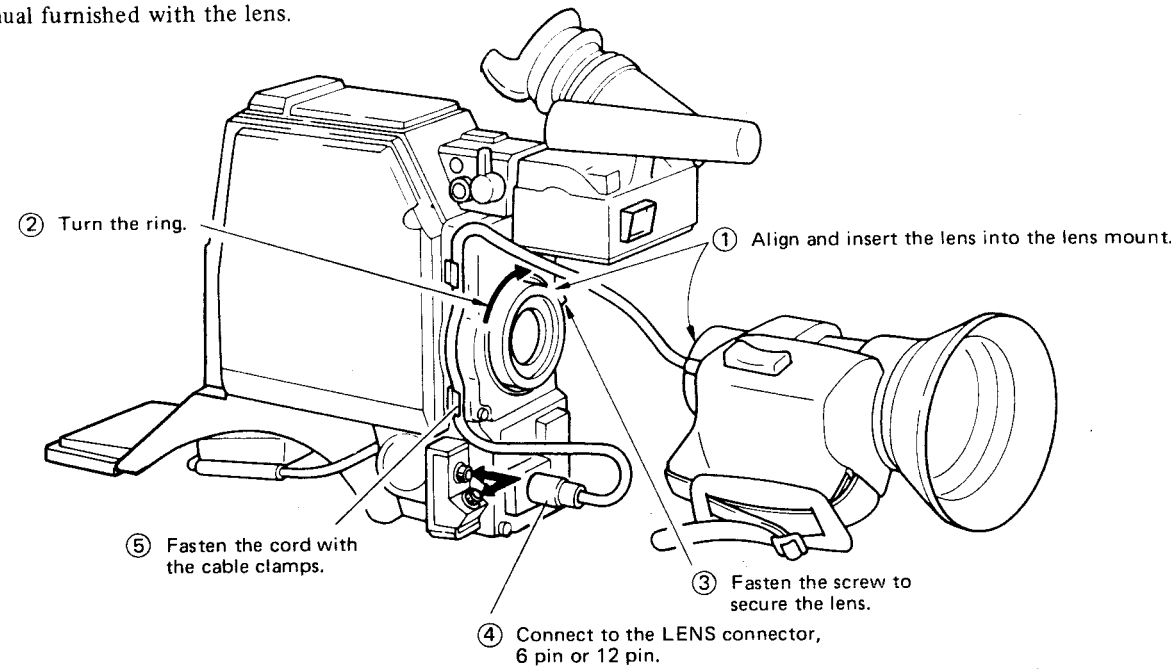


2. Fasten the screws (supplied with the BVV-1PS/BVV-1APS) securely.

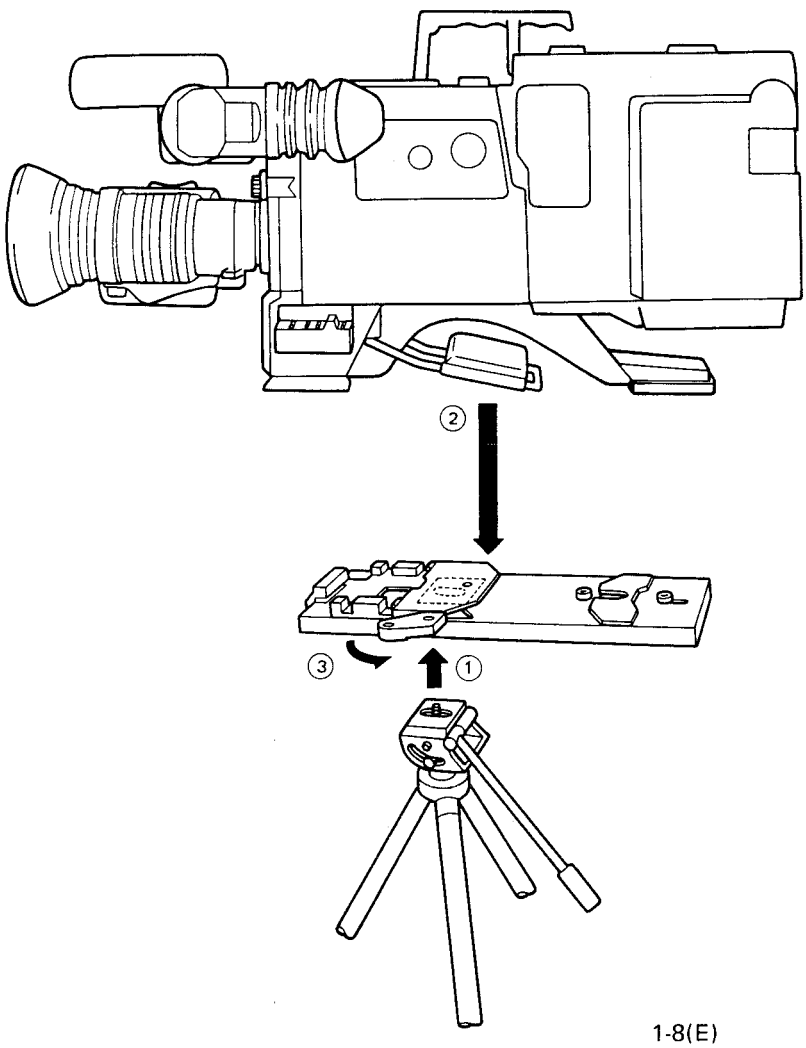


1-3-2. Lens Attachment

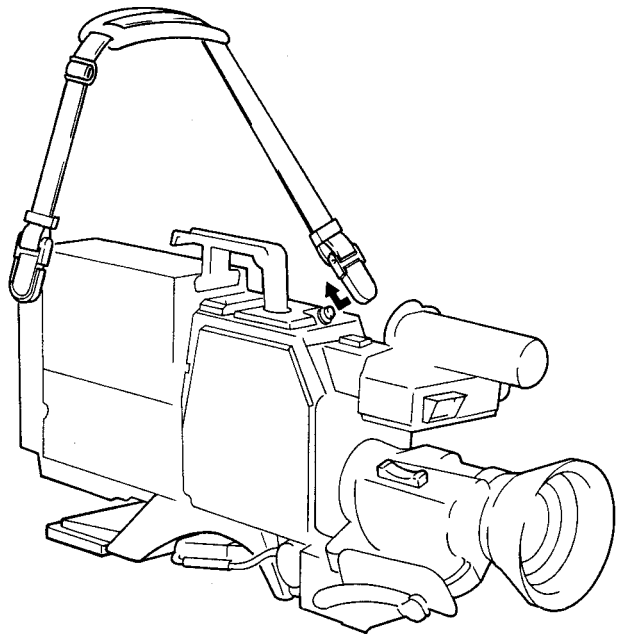
- For the details on the lens, refer to the instruction manual furnished with the lens.

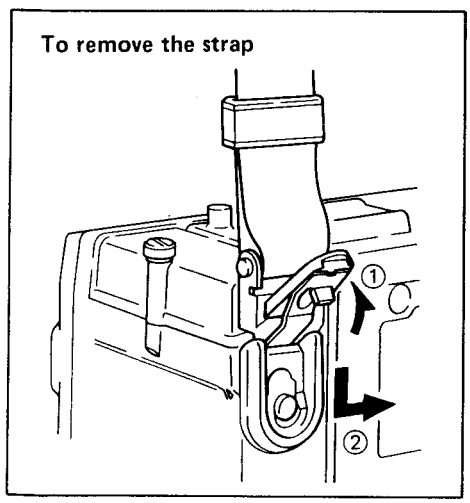


1-3-3. Tripod Attachment



1-3-4. Shoulder Strap Attachment



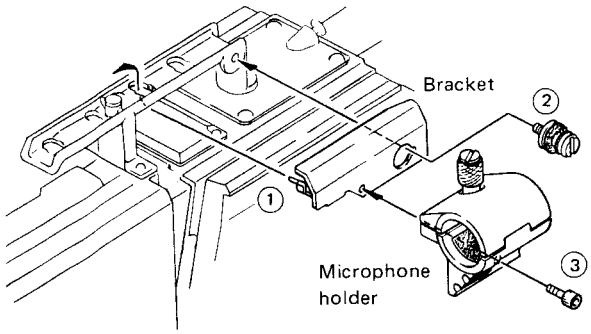


1-3-5. External Microphone Attachment

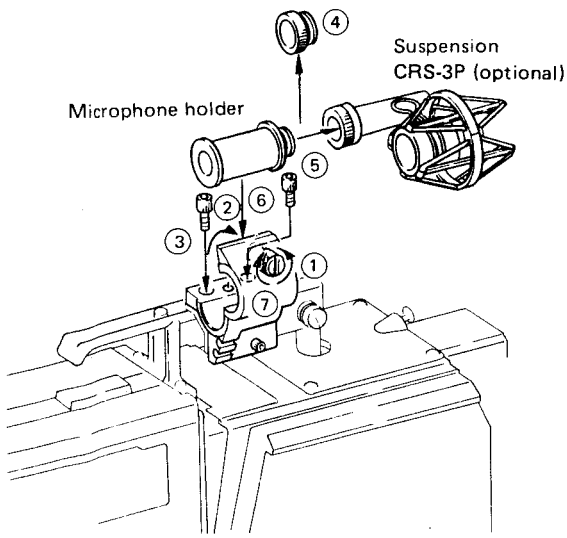
When a suspension is used

When a BVP-3AP is used with the BVV-1PS/BVV-1APS as a BVW-3P/BVW-3AP, attach the microphone to the camera by using a suspension, and the vibration noise of the VTR can be avoided.

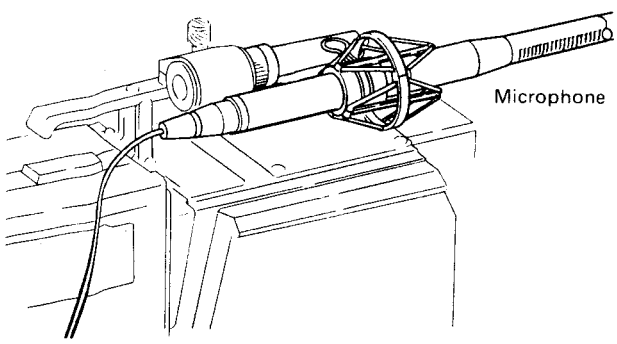
1. Attach a bracket and a microphone holder to the handle.



2. Fix the michrophone holder, clamp the suspension with the microphone holder, and fasten the screw.



3. Install the microphone to the suspension.

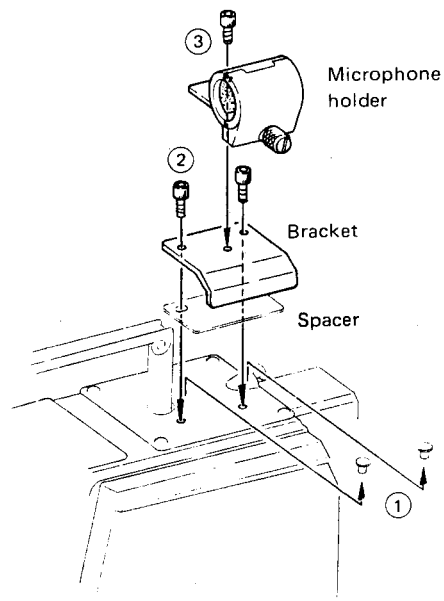


4. Connect the microphone cable to the MIC IN connector on the VTR.

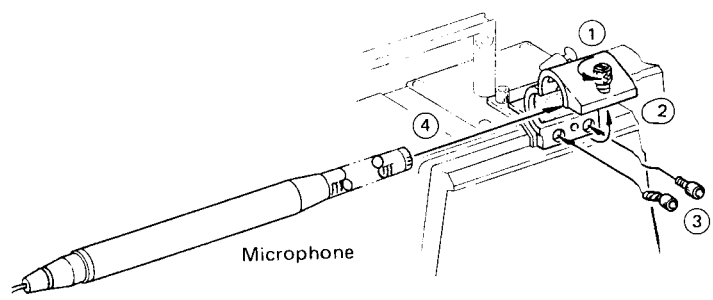
When a suspension is not used

If the suspension is not used, the recording sound is affected by the vibration noise of the VTR. When the camera is used with the BVV-1PS/BVV-1APS, avoid this method. When the CA-3 or CA-30P is used with the BVP-3AP, this method is recommended.

1. Remove the caps on the camera, and attach a bracket and a microphone holder to the camera.



2. Fix the microphone holder, clamp the microphone with the microphone holder, and fasten the screw.
   If the diameter of the attached microphone is small, attach the supplied adaptor to the microphone, and clamp it.

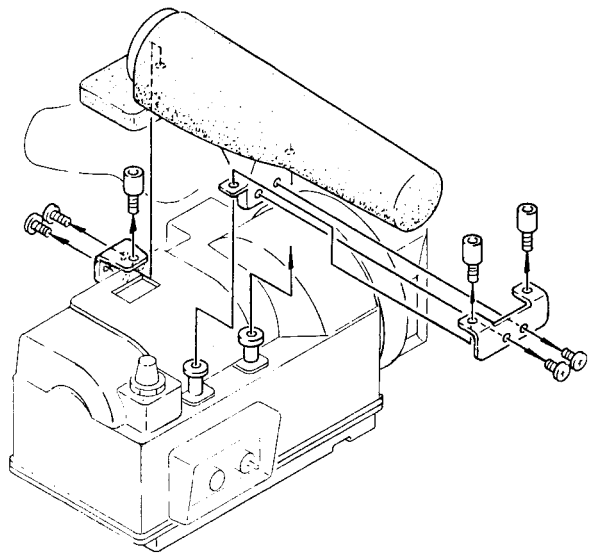


3. Connect the microphone cable to the MIC IN connector on the camera adaptor.

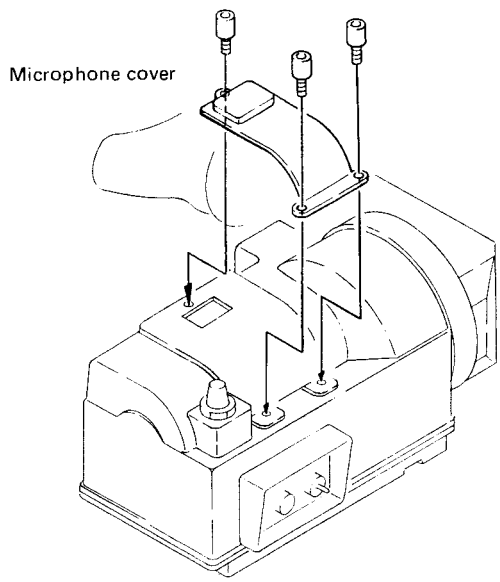
To remove the built-in microphone

When an external microphone is connected, the signal from the built-in microphone is automatically cut off. The built-in microphone can be removed with the following method, and if it is removed, attach the microphone cover supplied.

1. Remove the built-in microphone and the connector.



2. Attach the microphone cover.



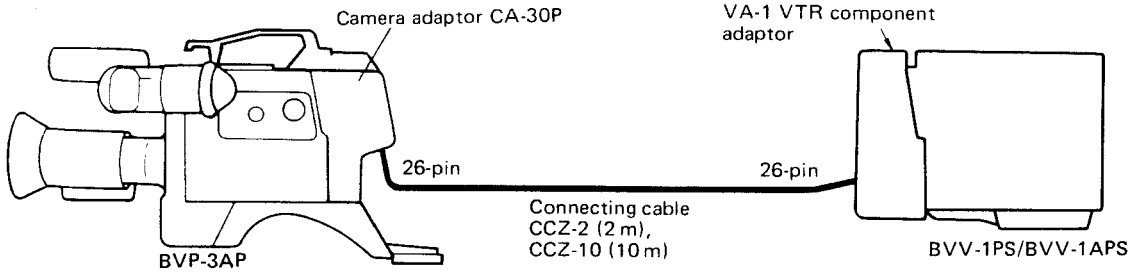
1-4. POWER SOURCES

The power is supplied from the unit connected to the 50-pin connector on the BVP-3AP. Please refer to the instruction manual furnished with the unit connected to the 50-pin connector.

1-5. CONNECTIONS

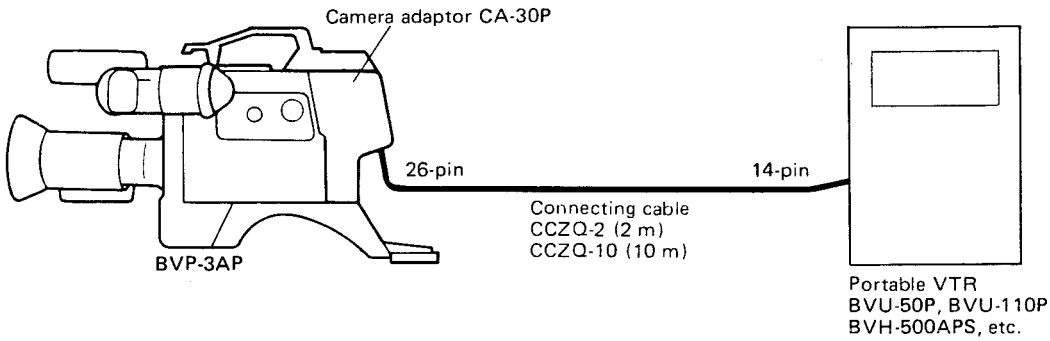
The BVP-3AP can be used as follows besides being directly connected to the BVV-1PS/BVV-1APS with the 50-pin connectors.

Connection with the BVV-1PS/BVV-1APS by using the connecting cable



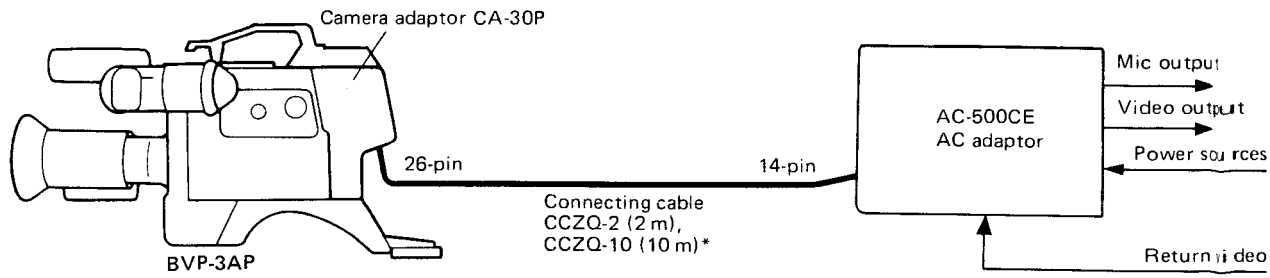
- The VA-1VP VTR composite/component adaptor can be connected in the same way.

Connection with a conventional portable VTR



- When the power is supplied from the VTR by using a camera cable of 10 meters long, the picture quality after the BATT indicator in the viewfinder starts blinking is not guaranteed.

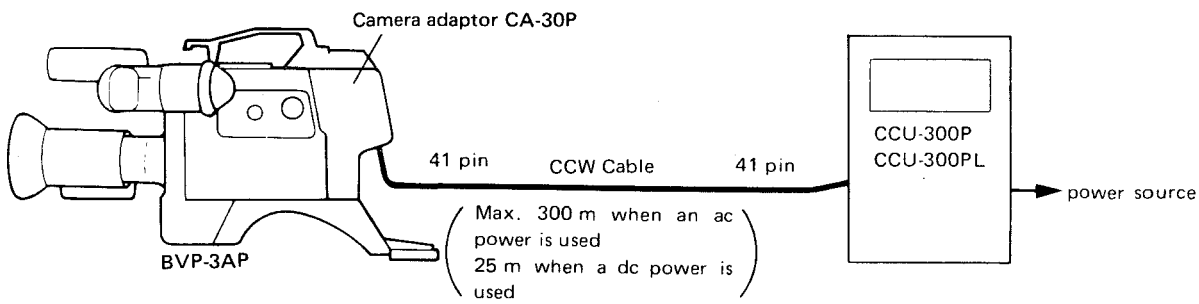
Connection with the AC-500CE



* To supply only the power to the camera, connect the CA-30P and the AC-500CE with a 4-pin cable.

- When the AC-500CE is connected to the VTR with a 4-pin cable, the power will be supplied to the VTR.

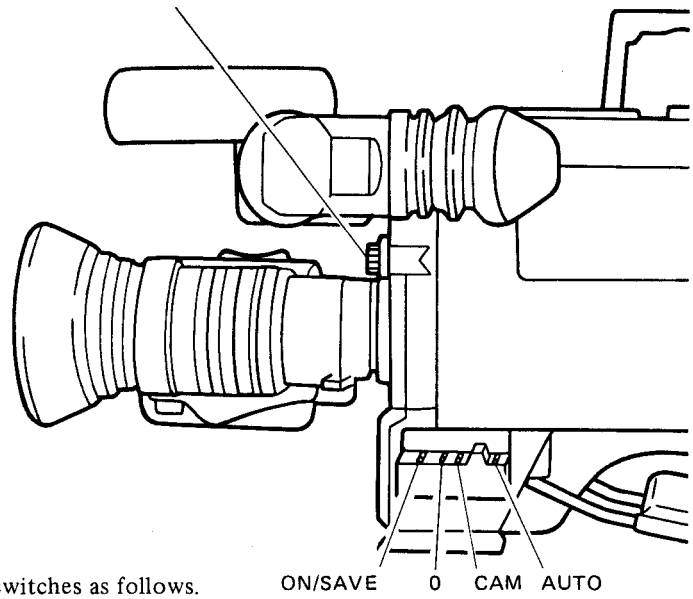
Connection with the CCU-300P/CCU-300PL



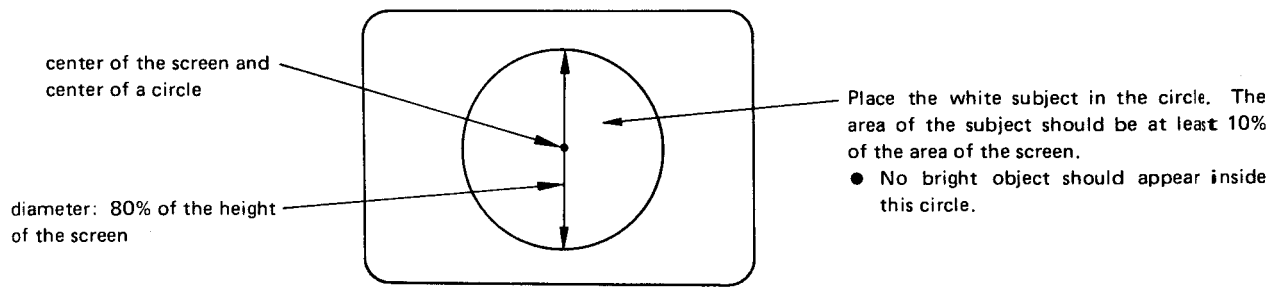
1-6. ADJUSTMENTS

1-6-1. White Balance and Black Balance Adjustments

1. Set the FILTER selector to the position corresponding to the lighting conditions.



2. Set the switches as follows.
3. Place a white pattern under the same lighting conditions as those under which the recording will be made, and zoom up on a pattern.
   A white object such as white cloth, white wall, etc. can be used instead of the white pattern.
   The minimum white area required for adjustment is as follows.



4. If the automatic iris is not equipped, adjust the iris. If the automatic iris is equipped, set the iris auto/manual switch to auto.
5. Set the AUTO W/B BAL switch to BLK. The switch automatically returns to the center position when it is released. After about 5 seconds, the black balance is automatically adjusted and the W/B CENT indicator in the viewfinder will light. The indicator will go off after about 5 seconds. The adjusted value will be memorized.
   ● The shutter closes when the switch is set to BLK.

6. Set the AUTO W/B BAL switch to WHT. After about 1 second, the white balance will be automatically adjusted and memorized in the same way as above.

The white balance and the black balance adjustments has been completed.

- While the W/B CENT indicator is lighting, the next adjustment can be started. In this case, the indicator goes off when the switch is set to the other position, and lights again when the adjustment finishes.
- When the zoom lens with automatic iris is used, the hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)
- When the AUTO W/B BAL switch is set to BLK, the setting of the GAIN selector is automatically changed and the noise may appear on the viewfinder screen, but this is not a problem.
- When the lighting conditions of the subject is changed, adjust the white balance only. Readjustment of the black balance is not required.

If the W/B CENT indicator blinks

Check that the proper filter has been selected and adjust the white balance and black balance again.

When the WHITE BAL switch is set to PRESET

The white balance at the 3200°K can be obtained when the FILTER selector is set to "1". Adjust the black balance only by setting the AUTO W/B BAL switch to BLK.

Memorizing the white balance and black balance value

The BVP-3AP has the memory function for the white balance and the black balance. The built-in four memories store the adjusted white balance and black balance values at each filter. The memorized value will be kept for about a week after the power is turned off or until the readjustment is performed.

1-6-2. Black Set Adjustment

The black set is adjusted by the AUTO W/B BAL switch together with the black balance.

To adjust the black set manually, use the volume on the built-in circuit board. For details, refer to Section 2.

1-6-3. Centering Adjustment

The centering of the R, G and B pickup tubes has been adjusted at the factory, so normally no readjustment will be necessary. If the centering adjustment is necessary, adjust as follows.

Adjust the white balance beforehand as indicated in 1-6-1.

1. Set the AUTO CENT switch to MEMORY.
2. Set the iris auto/manual switch on the lens to auto. Be sure that the iris is not fully open. If the iris is fully open, add illumination.
3. Shoot the supplied chart or an object.

   When using the supplied chart

   Adjust the camera position so that the supplied chart fills the screen.

   When not using the supplied chart

   Adjust the camera position so that the object is placed within the circle whose center is at the center of the screen and whose diameter is 80% of the height of the screen.

   - Use an object which has both horizontal and vertical lines with appropriate contrast.
   - If possible, use the black-and-white picture so that the level of the R, G, B will be nearly the same. An object of one color or with one deep color may cause a centering error.
   - Do not use a moving object and do not move the camera quickly during adjusting.
   - Avoid using an object with thin lines, such as a registration chart.
4. Set the AUTO CENT switch to START. The switch automatically returns to the MEMORY position when it is released. After about 10 seconds, the centering is automatically adjusted and the W/B CENT indicator in the viewfinder will light. The indicator will go off after about 5 seconds.
   - While the centering being adjusted, the image enhancer is set to off and the edges in the circle whose diameter is 70% of the height of the screen are emphasized.
5. Adjust the white balance again as the centering error may affect the white balance.

If the W/B CENT indicator blinks

An inappropriate test object is being used or

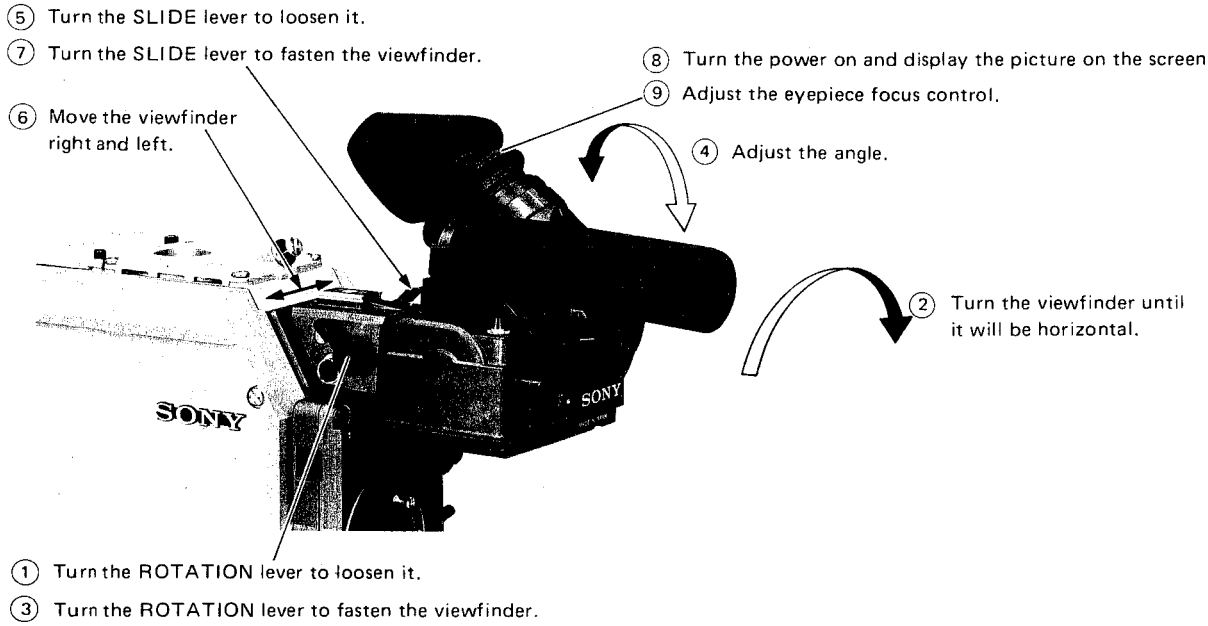
- The object has not enough edges and contrast.
- The iris setting is not proper.
- The object is out of focus.
- The object has moved during adjusting.
- The centering is out of the adjustable range.

Determine the cause and readjust.

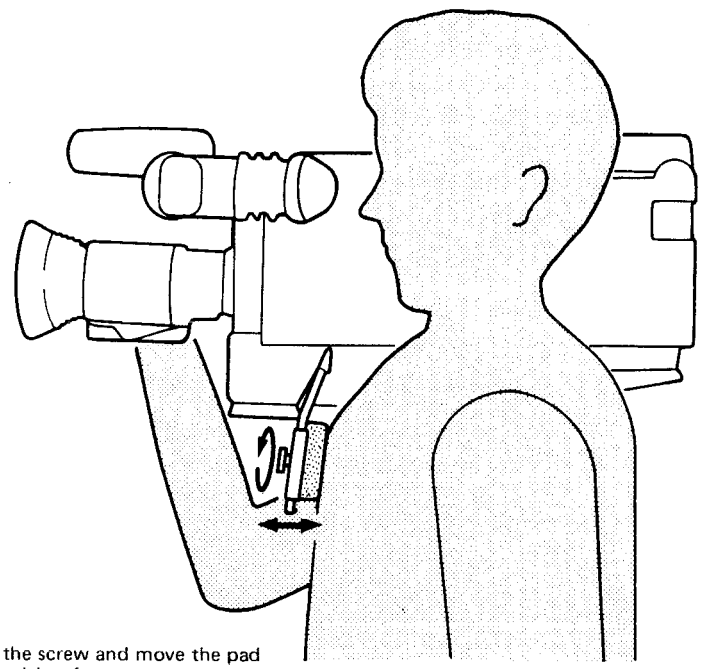
Memorizing the centering value

The adjusted centering value can be memorized in the same way as the white balance and black balance values and be kept for about one week after the power has been turned off. When more than one week has passed after the power has been turned off, the memory will be the factory-set value.

1-6-4. Viewfinder Adjustment



1-6-5. Brace Adjustment

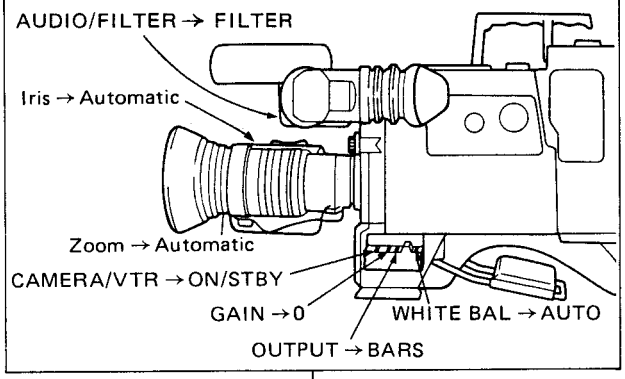


Loosen the screw and move the pad to the position for easy-to-use.

1-7. OPERATION CHECKS

- The following is an example of operation. For details on operation of the lens, please refer to the instruction manual furnished with the lens.

1. Set the switches as follows:
   AUDIO/FILTER → FILTER
   Iris → Automatic
   Zoom → Automatic
   CAMERA/VTR → ON/STBY
   GAIN → 0
   WHITE BAL → AUTO
   OUTPUT → BARS



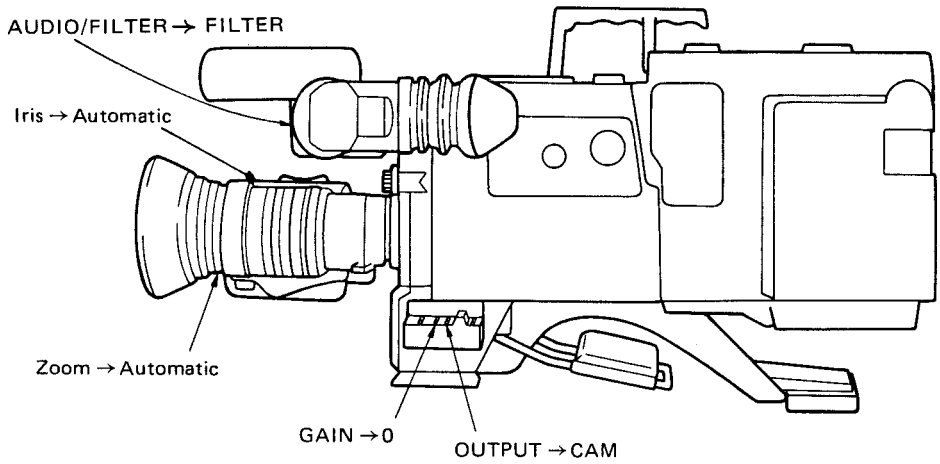
2. Adjust the viewfinder.
3. Make sure that the color bars appear on the viewfinder screen.
4. Turn the BRIGHT and CONTR controls so that the color bars on the viewfinder screen are clear.
5. Change the FILTER selector setting from 1 → 2 → 3 → 4, and check that the corresponding number of the FILTER indicators in the viewfinder screen lights.
6. Set the OUTPUT selector to CAM.
7. Point the camera at a subject.
8. Focus on the subject by turning the focus ring. Check that the picture appears on the viewfinder screen.
9. Check the motorized zooming.
10. Set the zoom in the manual mode.
11. Check the manual zooming.
12. Set the zoom in the automatic mode.
13. Point the camera at subjects under different brightness levels, and check that the automatic iris adjustment functions.*
14. Set the iris in the manual mode.
15. Turn the iris ring to check the manual iris adjustment.
16. Press and hold down the instant auto button to temporarily switch to automatic iris adjustment. Point the camera at subjects under different brightness levels to check the adjustment.
17. Set the iris in the automatic mode.
18. Set the GAIN selector to 9 and then to 18. Check that the iris closes and that the GAIN UP indicator lights.
19. Set the GAIN selector to 0.

* When the lens with a 6-pin connector is used, the hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)

1-8. OPERATION

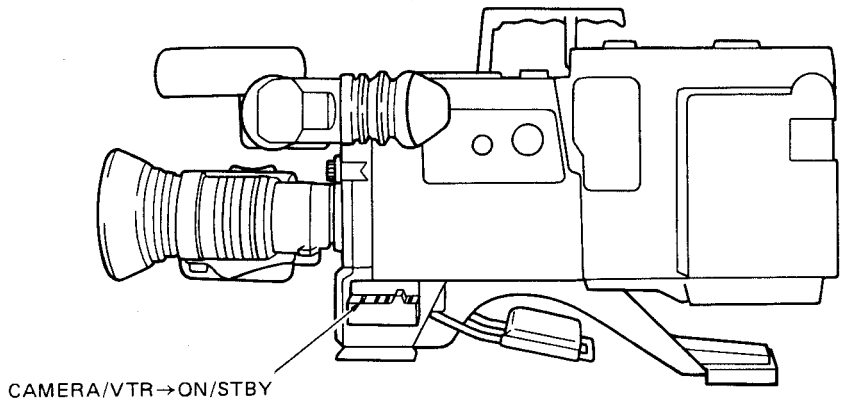
1-8-1. Preparation

Before operation, set the switches as follows.



1-8-2. Camera Recording

1. Turn on the power of the camera and the connected equipment.



2. Insert a cassette tape.
3. Select the appropriate filter.
4. Adjust the white balance and black balance.

When the white balance and black balance value has been memorized

Set the WHITE BAL switch to AUTO.

When the white balance and black balance value is not memorized but you want to start recording quickly

Set the WHITE BAL switch to PRESET and set the AUTO W/B BAL switch to BLK. The white balance and black balance at 3200°K is obtained.

To adjust the white balance and black balance

① Set the WHITE BAL switch to AUTO.
② Shoot the white subject.
③ Set the AUTO W/B BAL switch to BLK. When the W/B CENT indicator in the viewfinder lights, the black balance is adjusted.
④ Set the AUTO W/B BAL switch to WHT. When the W/B CENT indicator in the viewfinder lights, the white balance is adjusted.

- For details, refer to "1-6-1. White Balance and Black Balance Adjustments".

5. Point the camera at the subject and adjust focus and zoom.
6. Press the VTR button to start recording. The REC indicator in the viewfinder lights during recording.
7. To stop recording, press the VTR button again.

Recording under the insufficient lighting

If a clear picture cannot be obtained because of insufficient lighting, set the GAIN switch to "9" or "18". The video output level can be raised 9 dB by setting the GAIN switch to the 9 position, and 18 dB by setting at the 18 position.

- Normally, set the selector to "0".

Checking the video level

The zebra pattern will appear on the part of the viewfinder screen where the video level of the picture is 70% (IRE UNIT). For manual iris adjustment, you can use this function for the appropriate setting. The zebra pattern can be disappeared by the TALLY/ ZEBRA ON/OFF switch. However if the switch on the built-in circuit board is set to OFF, the zebra pattern cannot be turned on and off with the TALLY/ZEBRA ON/OFF switch. For details, refer to Section 2.

1-9. PRECAUTIONS

Never point the camera directly at the sun.
Pointing the camera directly at the sun or other source of bright light may damage the pickup tube. Avoid continuous shooting of a subject in strong light, which may also damage the pickup tube. If shooting in a strong light is necessary, close the iris as much as possible.

Avoid rough handling or mechanical shock to the camera.

After using the camera
Turn off the power of an equipment connected to the camera.

Operating and storage locations
Avoid operating and storing the camera in the following locations.
- Extreme hot or humid places (The operating temperature is from $-20^{\circ}C$ to $+40^{\circ}C$, $-4^{\circ}F$ to $+104^{\circ}F$.)
- Places subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Places with subject to a strong magnetic field.

Keep the camera in a horizontal positions and allow adequate air circulation.

Clean the viewfinder lens with a lens cleaner available at camera stores.
Do not use any type of solvent, such as alcohol, benzine or thinner.

1-10. SPECIFICATIONS

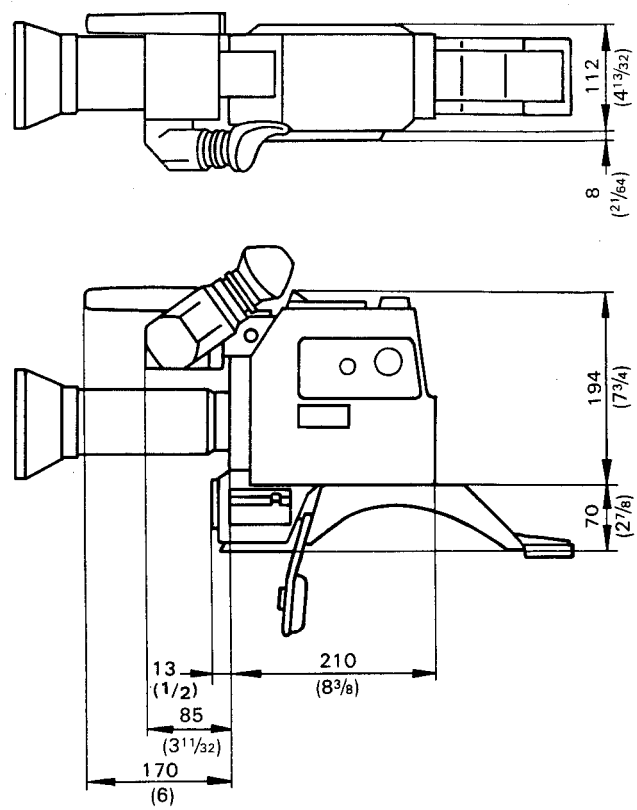
Camera

Pickup tube	2/3-inch Saticon (magnetic focus, static deflection)
System	RGB 3-tube system (with quartz filter)
Spectral system	F1.4 prism system
Built-in filters	1: 3200°K 2: 5600°K + 1/4ND 3: 5600°K 4: 5600°K + 1/16ND
Lens mount	Special bayonet mount
Video output	PAL, 1.0 V(p-p), 75 ohms, unbalanced, sync negative Two outputs (TEST OUT, VTR connector)
Connectors	VTR: 50 pin (video output, microphone output, sync output, power input) TEST OUT: BNC type LENS: 6 pin, 12 pin REMOTE: 6 pin
Sensitivity	2000 lux with f4.5 (typical), 89.9% reflectance
Minimum subject illumination	30 lux (f1.4, +18 dB gain)
Video signal-to-noise ratio	57 dB (typical)
Horizontal resolution	650 TV lines (center)
Registration	0.1% for Zone I (within circle with a diameter corresponding to 80% of picture height) 0.15% for Zone II (within circle with a diameter corresponding to picture width) 0.3% for Zone III (others)
Geometric distortion	Less than 1%
Power requirements	12 Vdc (10.5 - 17 V)
Power consumption	20W
Warm-up time	Approx. 3.5 seconds (from preheat condition)
Operating temperature	−20°C to +40°C (−4°F to +104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Weight	4.6 kg with viewfinder (10 lb 2 oz)

Design and specifications subject to change without notice.

Dimensions

Unit: mm (inches)



Viewfinder

Picture tube	1.5-inch monochrome BRIGHT control, CONTR control, TALLY/ZEBRA ON/OFF switch, PEAKING switch, AUDIO/FILTER switch, AUDIO CH-1 control
Resolution	500 TV lines
Microphone	Sharp-directional

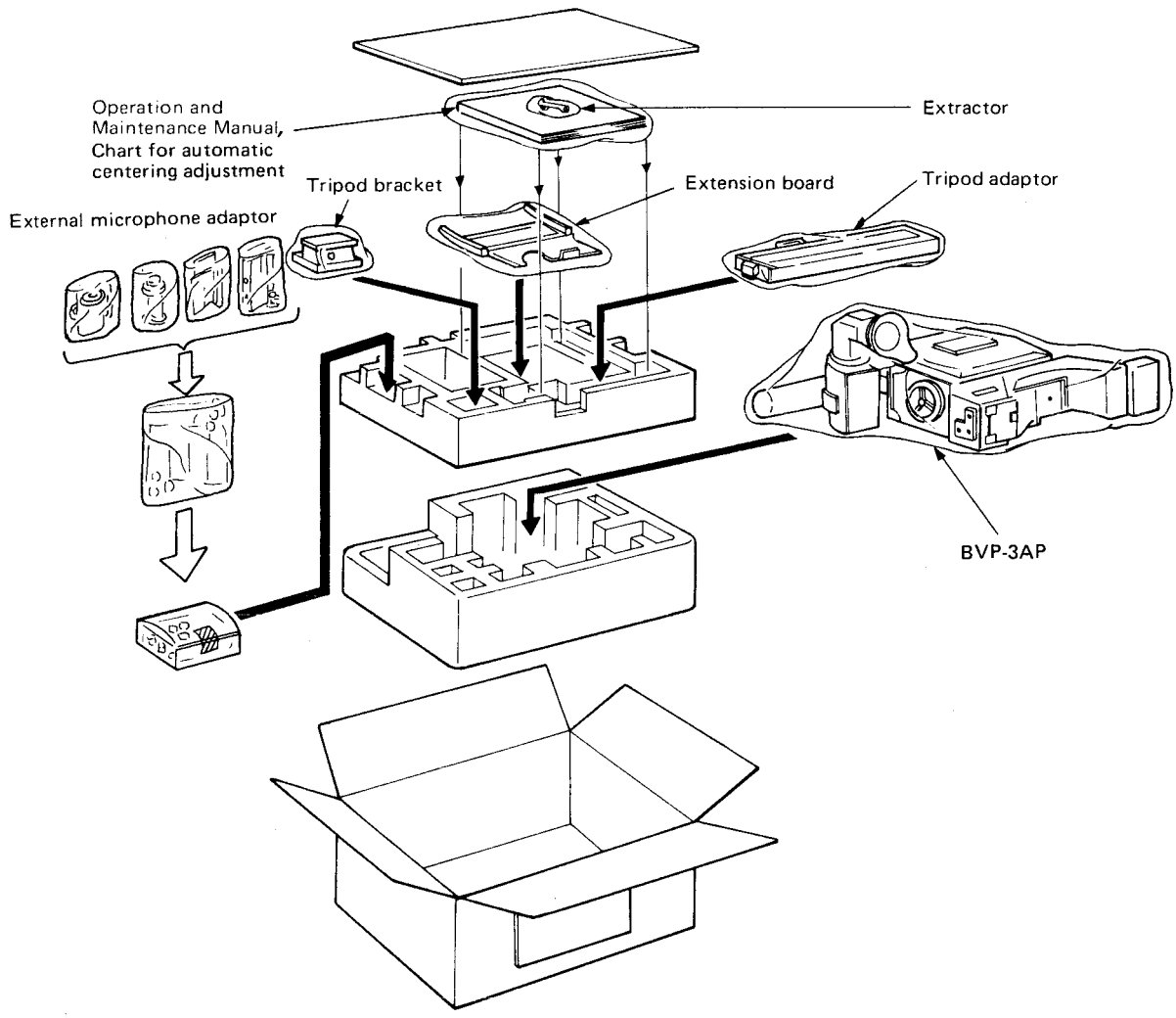
Supplied accessories

Tripod adaptor x1
Tripod bracket x1
Extension board x1
Extractor x1
Chart for automatic centering adjustment x1
External microphone adaptor x1

Recommended equipment

BVV-1PS, BVV-1APS portable videocassette recorder
CA-3, CA-30P camera adaptor
AC-500CE AC adaptor
RM-P3 remote ocntrol unit
BVF-50 video monitor

1-11. PACKING OF THE BVP-3AP



1-12. HOW TO OPERATE THE BETACAM SYSTEM BVW-3P/BVW-3AP

1-12-1. Features

Compact and lightweight

The BVP-3AP camera, the BVV-1PS/BVV-1APS VTR, lens, battery and cassette tape together weigh only about 10 kg.

Wireless system

The camera, VTR, viewfinder, battery, microphone, etc. can be connected without using cables.

Low power consumption

The power consumption is so low that the unit can be operated for about 30 minutes with a single NP-1 battery pack when the BVV-1PS/BVV-1APS is used together.

Video and audio confidence

The video and audio confidence system makes it possible to check the recording picture and sound.

High-quality picture

A newly-developed recording system using 1/2-inch cassette tape has greatly improved the picture quality, which now approaches the quality of the 1-inch VTR picture. The three-pickup tube camera using Magnetic focus-Static deflection Plumbicon tubes also assures high quality picture.

Built-in time code generator

A built-in time code generator allows simultaneous recording of the time code during operation. The user bit can also be recorded.

Independent time code track

The time code track is independent of the video track so that time code recording or erasing is possible using an editing machine.

Two audio channels

The sound from a built-in microphone or external microphones or the sound from other audio sources can be recorded on two audio channels separately.

Composite shooting

Videocassette programs can be composed shot-by-shot without any glitches between scenes because vertical-interval timing with a tape back-up feature guarantees a clean cut every time.

Warning system

If there is a problem, warning lamps allows you to monitor the operation and alarm is sounded simultaneously from the speaker or earphone.

Tape remaining time indicator

The tape remaining time indicators are situated in the viewfinder.

Use of the wireless microphone system

A receiver of the Sony wireless microphone system can be attached to the system.

Additional battery pack

One more battery pack can be used together with the battery pack installed in the battery compartment of the BVV-1PS/BVV-1APS.

Dolby NR* (Noise Reduction) C-type system for improving sound quality
The newly developed C-type Dolby NR system is employed for an improved S/N ratio and wider dynamic range. To activate the Dolby NR circuit, refer to section 2 of the BVV-1PS/BVV-1APS instruction manual.

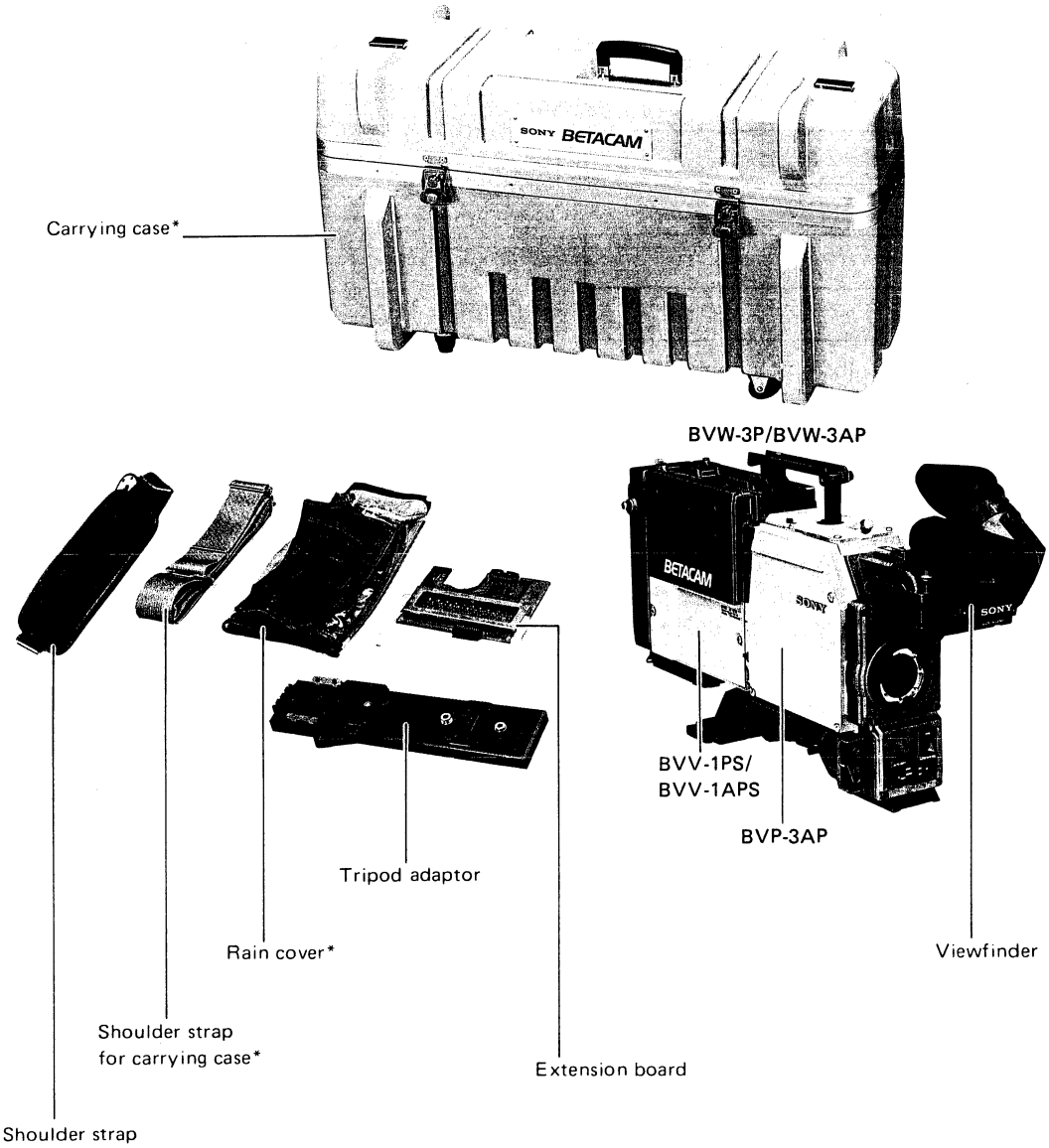
* "Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

Note

When the BVV-1PS with the serial No. 49999 or less is used, the following functions of the BVW-3P/BVW-3AP do not work.

- The audio level indicator in the viewfinder
- The recording level control of audio channel 1

1-12-2. Components of the BVW-3P/BVW-3AP



Battery compartment lid strap
Chart for the automatic centering adjustment
External microphone adaptors
Extractor
50-pin caps
Time code cable
6-pin connector

* A carrying case, a shoulder strap for carrying case and a rain cover are supplied to the Betacam system BVW-3P/BVW-3AP. When a BVV-1PS/BVV-1APS VTR and a BVP-3AP camera are obtained separately, they will not be supplied. To obtain them, please consult your Sony personnel.

1-12-3. Check Routines

Before operation, we recommend to perform the following check and confirm that the Betacam system works correctly. In this case, use a color monitor to check the picture.

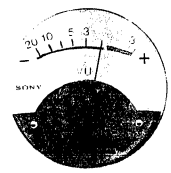
1. Preparation

1. Insert a fully-charged battery pack.

2. POWER switch → ON

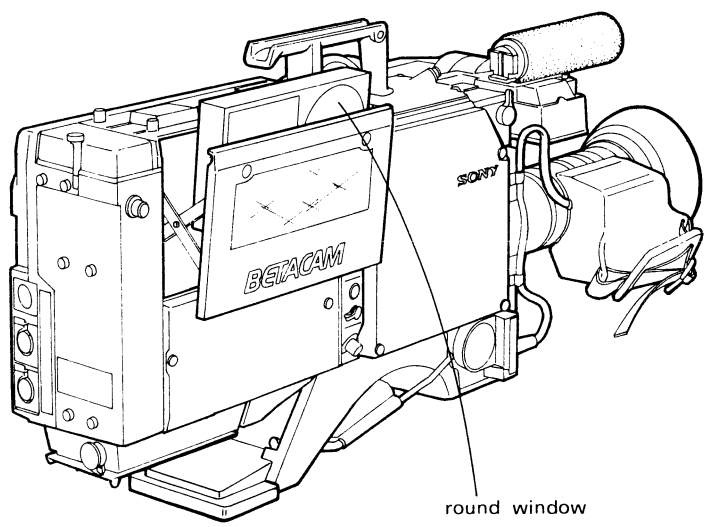
3. Check that the HUMID lamp does not light.

4. Check the battery.
   Set the METER SELECT switch to BATT and check that the meter pointer deflects into the green zone.



5. Set the time code or the user bit, if necessary.

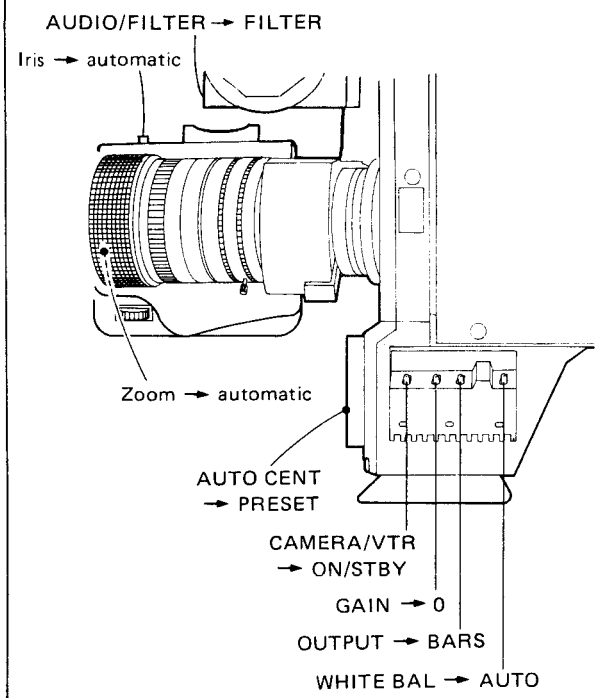
6. Insert a cassette tape.



- Check that the safety tab on the bottom of the cassette is in place.

2. Check the camera

1. Set the switches as shown below.



2. Adjust the position of the viewfinder.

3. Check that the color bars appear on the viewfinder.

4. Turn the BRIGHT control and CONTR control on the viewfinder so that the color bars on the viewfinder screen can be seen clearly.

5. Turn the FILTER selector 1 → 2 → 3 → 4 and check that the filter indicator in the viewfinder lights in turn according to the position of the FILTER selector.

6. Set the OUTPUT selector to CAM.

7. Point the camera to the appropriate subject.

8. Turn the focus ring so that the subject is in the focus. Check that the subject appears on the viewfinder screen.

9. Check the motorized zoom function.
With the motorized zoom knob, the picture changes from wide-angle to telephoto and vice versa.

10. Set the zoom in the manual mode.

11. Check the manual zoom function.
Turn the manual zoom lever and check that the picture changes from wide-angle to telephoto and vice versa.

12. Set the zoom in the automatic mode.

13. Point the subject with different brightness and check that the auto iris mechanism functions. *

14. Set the iris in the manual mode.

15. Turn the iris ring and check that iris is adjusted.

16. Press and hold down the instant auto button to temporarily switch to automatic iris adjustment. Point the camera at subjects under different brightness levels to check the adjustment.

17. Set the iris in the automatic mode.

18. Set the GAIN selector to 9 and to 18.
Check that the iris closes and that the GAIN UP indicator in the viewfinder lights.

19. Set the GAIN selector to 0.

20. Set the AUDIO/FILTER switch to AUDIO.
Check that the FILTER/AUDIO indicator shows the audio level.

* When a lens with a 6-pin connector is used, hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)

3. Check the VTR

Perform the 3-1. through the 3-5. continuously.

3-1. Check the tape transport

1. Set the TAPE TIMER/TIME CODE switch to TAPE TIMER.

2. Press the VTR button on the camera.
   Check that:
   - the tape runs.
   - the figures on the display changes as the tape runs.
   - the REC lamp in the viewfinder lights.
   - the RF and SERVO lamps do not light.

3. Press the VTR button again.
   Check that the tape stops and the REC lamp in the viewfinder goes off.

4. Press the VTR button on the lens.
   Check that:
   - the tape runs.
   - the figures on the display changes as the tape runs.
   - the REC lamp in the viewfinder lights.
   - the RF and SERVO lamps do not light.

5. Press the VTR button again.
   Check that the tape stops and the REC lamp in the viewfinder goes off.

6. Press the RESET button.
   Check that the figures on the display changes to "00 00 00".

7. Press the LIGHT button.
   Check that the display is illuminated.

3-2. Check the automatic audio recording level adjustment

1. Set the METER SELECT switch to AUDIO.

2. Set the AUIDO CH-1, CH-2 AUTO/MANU switch to AUTO.

3. Set the AUDIO IN CH-1 and CH-2 switches to CAM.

4. Point the microphone to an audio source.

5. Set the CH SELECT switch to CH-1.
   Check that the level meter pointer deflects according to the sound volume.

6. Set the CH SELECT switch to CH-2.
   Check that the level meter pointer deflects according to the sound volume.

3-3. Check the manual audio recording level adjustment

1. Set the AUDIO CH-1, CH-2 AUTO/MANU switch to MANU.
2. Turn the AUDIO LEVEL CH-2 control clockwise.
   Check that the level meter pointer deflects.
3. Set the CH SELECT switch to CH-1.
4. Turn the AUDIO LEVEL CH-1 control clockwise.
   Check that the level meter pointer deflects.
5. Turn the AUDIO CH-1 control on the camera.
   Check that the level meter pointer deflects.
6. Set the AUDIO switch to AUTO.

3-4. Check the earphone and speaker

1. Turn the VOLUME controls on the VTR and camera to MAX.
   Check that the sound volume from each speaker increases.
2. Connect an earphone to the EARPHONE jack.
   Check that the sound from the speaker is cut off and the sound is heard from the earphone.
3. Turn the VOLUME control.
   Check that the sound volume from the earphone changes.

3-5. Check the audio confidence function

1. Set the AUDIO IN CH-1 switch to CAM, and the AUDIO IN CH-2 switch to LINE.
2. Press the VTR button.
3. Check that the sound from the microphone is heard.
4. Set the AUDIO IN CH-1 switch to LINE and the AUDIO IN CH-2 switch to CAM.
5. Check that the sound from the microphone is heard.

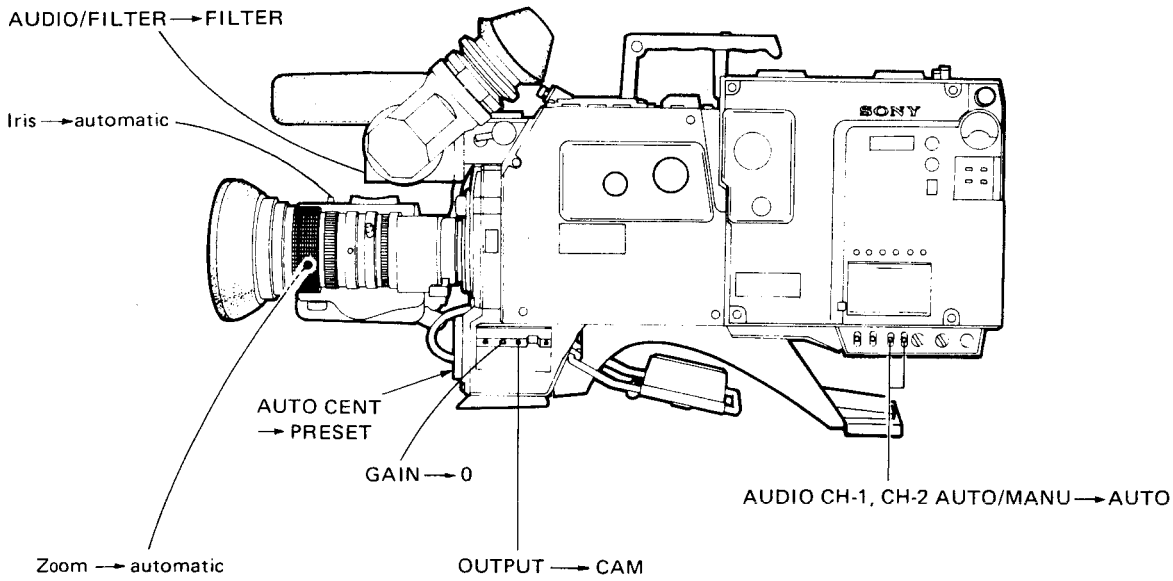
3-6. Check the external microphones

1. Connect the microphones to the AUDIO IN CH-1 and CH-2 connectors.
2. Set the AUDIO IN CH-1 and CH-2 switches to MIC.
3. Set the AUDIO switch to AUTO.
4. Point the microphones to the sound source.
5. Set the CH SELECT switch to CH-1 and check that the meter pointer deflects according to the sound volume.
6. Set the CH SELECT switch to CH-2 and check that the meter pointer deflects according to the sound volume.

1-12-4. Operation

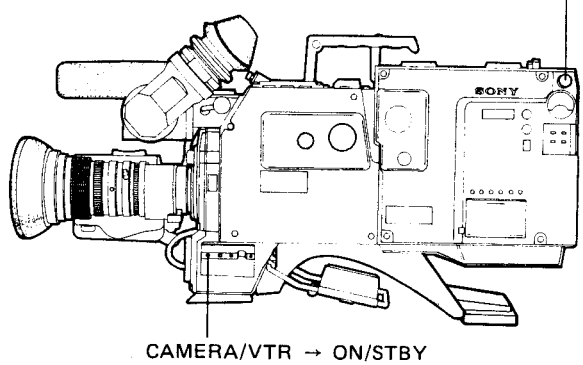
1. Preparation

Before starting operation, check that the switches are set correctly as shown below.



2. Recording

1. Turn the power on.



2. Insert a cassette tape.

3. Select the appropriate filter according to the lighting conditions.

4. Adjust the white balance and the black balance.

When the white balance and the black balance value has been memorized
Set the WHITE BAL switch to AUTO.

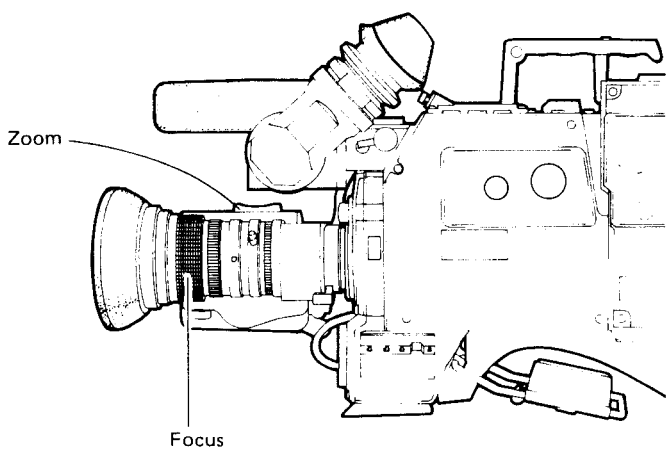
When the white balance value is not memorized but you want to start recording quickly
Set the WHITE BAL switch to PRESET and set the AUTO W/B BAL switch to BLK. The white balance and the black balance at 3200°K is obtained.

To adjust the white balance and the black balance

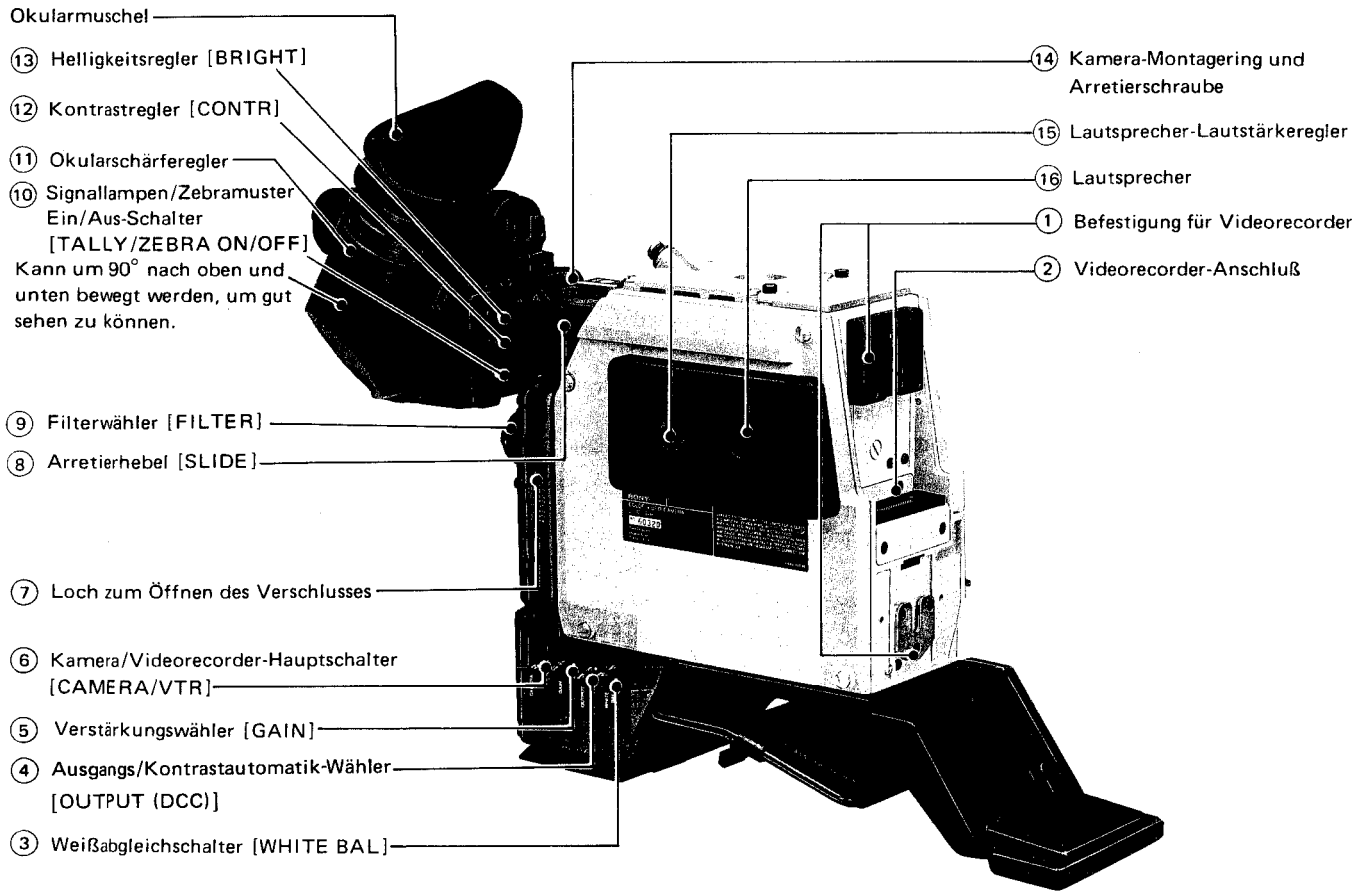
1. Set the WHITE BAL switch to AUTO.
2. Zoom up the white subject.
3. Set the AUTO W/B BAL switch to BLK. When the W/B CENT indicator lights, the black balance is adjusted.
4. Set the AUTO W/B BAL switch to WHT and check that the W/B CENT indicator lights.

- For details on the white balance and black balance adjustments, see "1-6. Adjustments".

5. Point the camera to the subject and adjust the focus and zoom.



1-2. LAGE UND FUNKTION DER TEILE



① Befestigung für Videorecorder

Hier wird der tragbare Videorecorder BVV-1PS/ BVV-1APS oder der Kameraadapter CA-3 oder CA-30 usw. angesezt.

② Videorecorderanschluß (50-pol)

Der 50-polige Anschluß des Videorecorders BVV-1PS/BVV-1APS oder des Kameraadapters CA-3 oder CA-30P usw. wird hier angeschlossen.

③ Weißabgleichschalter [WHITE BAL]

PRESET: In der Stellung „1" des FILTER-Wählers ⑨ erhält man einen werkseitig voreingestellten Weißabgleich auf 3200°K (Farbtemperatur einer Jodlampe). Verwenden Sie diese Position, wenn Sie keine Zeit zum Einstellen des Weißabgleichs haben.

AUTO: Im allgemeinen wird diese Position gewählt. In der Stellung WHT des AUTO W/B BAL-Schalters ㉕ wird der Weißabgleich automatisch eingestellt und gespeichert. In der Stellung AUTO des Weißabgleichschalters erhalten Sie dann immer diesen gespeicherten Wert.

4 Ausgangs/Kontrastautomatik-Wähler [OUTPUT (DCC)]

Zur Wahl des am VTR-Anschluß 2 oder TEST OUT-Anschluß 22 anliegenden und zum Sucher geführten Signals.

CAM: Für das von der Kamera aufgenommene Signal. In der Stellung DCC ON arbeitet der eingebaute DCC-Schaltkreis (Dynamic Contrast Control). Ist keine Kontrastautomatik erwünscht, stellen Sie den Wähler auf DCC OFF.

BARS (DCC OFF): Für das Farbbalkensignal. Wählen Sie diese Position, um die Farbbalken zur Einstellung des Video-Monitors zu verwenden oder um die Farbbalken aufzunehmen.

⑤ Verstärkungswähler [GAIN]

Dieser Wähler wird normalerweise auf „0" eingestellt. Wird er auf „9" oder „18" gestellt, erhöht sich der Video-Ausgangspegel jeweils um 9 bzw. 18 dB.

⑥ Kamera/Videorecorder-Hauptschalter [CAMERA/VTR]

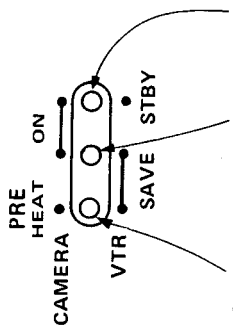
Mit diesem Schalter wird der Strom zur Kamera und zum Videorecorder ein- und ausgeschaltet.

CAMERA-PREHEAT: Aufnahmeröhre und Heizung der Sucher-Bildröhre werden mit Strom versorgt; das Bild erscheint jedoch nicht auf dem Sucherschirm. In dieser Schalterstellung wird weniger Strom verbraucht.

CAMERA-ON: Alle Teile der Kamera werden mit Strom versorgt, und das Bild erscheint auf dem Sucherschirm.

VTR-SAVE: Die Kopftrommel kommt zum Stillstand, und das Band wird freigegeben. Weil in dieser Schalterstellung weniger Strom verbraucht wird, ist eine längere Aufnahmezeit möglich.

VTR-STBY: Die Kopftrommel beginnt sich zu drehen, und das Band wird um die Kopftrommel geschlungen.



Die Aufnahme beginnt, wenn die VTR-Taste gedrückt wird.

Die Aufnahme beginnt, wenn die VTR-Taste gedrückt wird.
Am Anfang der Aufnahme kann das Bild etwas instabil sein.

Aufnahme ist nicht möglich. Das Bild erscheint nicht auf dem Sucherschirm.

⑦ Loch zum Öffnen des Verschlusses

Wenn sich der Verschluß bei normalem Betrieb nicht öffnet, so kann er durch Durchstoßen der Öffnung zwangsgeöffnet werden. Überprüfen Sie jedoch zuvor die Stromversorgung und die Anschlüsse. Öffnet sich der Verschluß danach immer noch nicht, nehmen Sie die Gummikappe ab und stoßen Sie mit einem dünnen Stab in das Loch. Der Verschluß öffnet sich dann. Versäumen Sie nicht, sich an Ihren Sony Händler zu wenden, wenn der Verschluß einmal auf diese Art geöffnet werden mußte.

⑧ Arretierhebel [SLIDE]

Zum Arretieren des Suchers stellen Sie den Hebel nach rechts und zum Lösen der Arretierung stellen Sie ihn nach links. Bei gelöster Arretieung kann der Sucher horizontal in die optimale Betriebsposition bewegt werden.

⑨ Filterwähler [FILTER]

Wählen Sie je nach Lichtverhältnissen den geeigneten Filter.

Filternummer	Farbtemperatur	Lichtverhältnisse
1	3200°K	Sonnenaufgang, Sonnenuntergang, im Studio
2	5600°K +1/4ND*	Im Freien bei gutem Wetter
3	5600°K	Bei Regen oder bewölktem Himmel
4	5600°K +1/16ND*	Schneelandschaft bei klarem Wetter, im Gebirge oder am Meer

*ND: Graufilter

⑩ Signallampen/Zebramuster-Ein/Aus-Schalter [TALLY/ZEBRA ON/OFF]

ZEBRA TALLY: Das Zebramuster und die Signallampe werden eingeschaltet.

OFF: Das Zebramuster und die Signallampe werden ausgeschaltet.

ZEBRA: Das Zebramuster wird ein- und die Signallampe ausgeschaltet.

⑪ Okularschärferegler

Zum Scharfstellen des Sucherbildes.

- Dieser Regler hat keinen Einfluß auf das Ausgangssignal von der Kamera.

⑫ Kontrastregler [CONTR]

Mit diesem Regler wird der Bildkontrast des Sucherschirms eingestellt.

- Dieser Regler hat keinen Einfluß auf das Ausgangssignal der Kamera.

⑬ Helligkeitsregler [BRIGHT]

Mit diesem Regler wird die Helligkeit des Sucherschirms eingestellt. Stellen Sie den Regler für helleres Bild nach rechts.

- Dieser Regler hat keinen Einfluß auf das Ausgangssignal der Kamera.

⑭ Kamera-Montagering und Arretierschraube

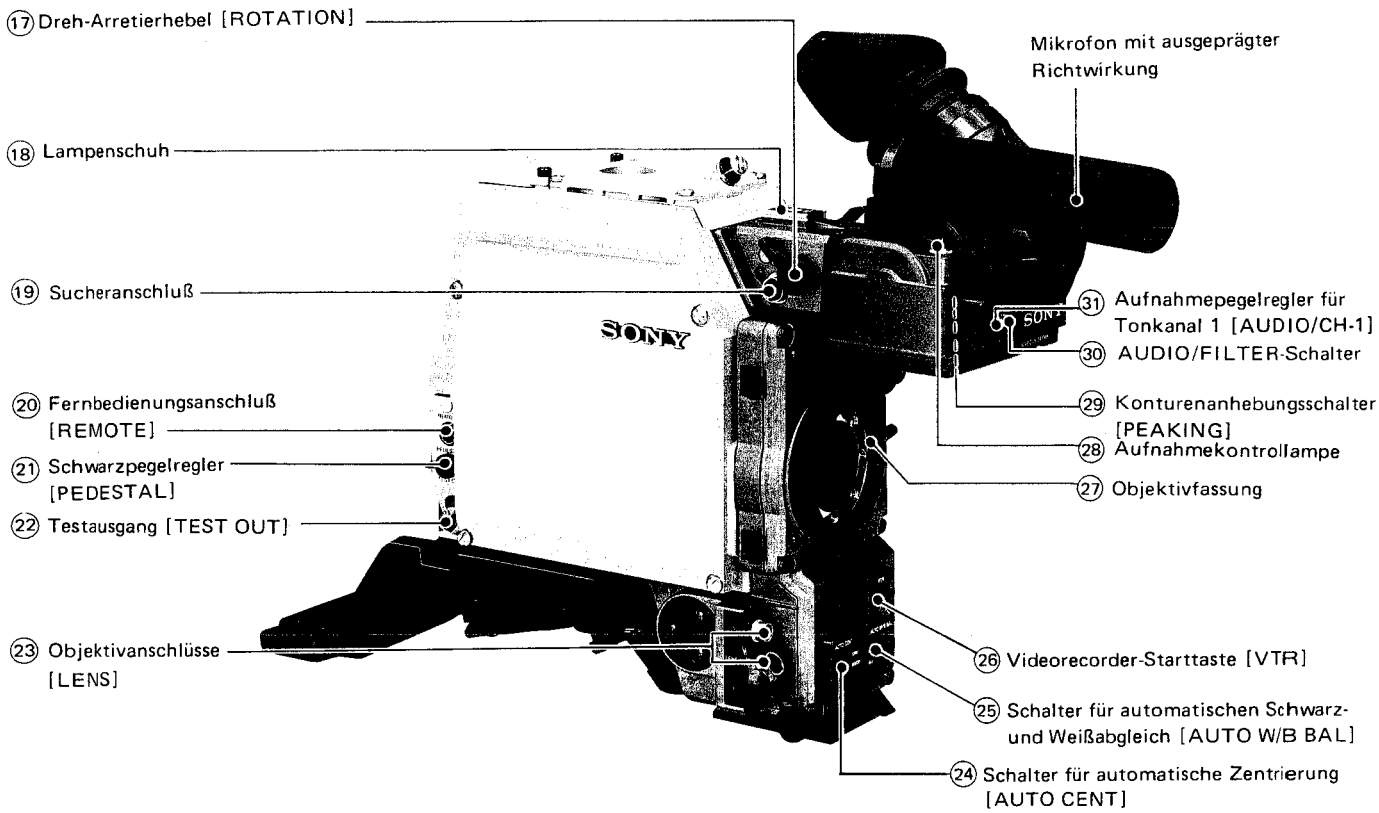
Nehmen Sie den Sucher normalerweise nicht von der Kamera ab. Ist ein Abnehmen jedoch nicht vermeidbar, so öffnen Sie die Arretierschraube und drehen Sie den Befestigungsring vom Objektiv aus gesehen nach rechts. Der Sucher kann dann abgezogen werden. Um den Sucher wieder anzubringen, drehen Sie den Befestigungsring nach links, und drehen Sie zur Sicherung die Arretierschraube fest.

⑮ Lautsprecher-Lautstärkeregler

Zur Einstellung der Lautsprecher-Lautstärke. Durch Drehen nach rechts erhöht sich die Lautstärke. Wird der Regler ganz nach links gedreht, ist kein Ton zu hören.

⑯ Lautsprecher

Beim Aufnehmen kann gleichzeitig der Wiedergabeton (Mischsignal von Kanal 1 und 2) überwacht werden. In den anderen Betriebsarten ist der am Videorecorder gewählte E-zu-E-Ton zu hören. Außerdem ist auch ein Warnton entsprechend der Warnanzeigen zu hören.



⑰ Dreh-Arretierhebel [ROTATION]

Drehen Sie den Hebel zum Befestigen des Suchers nach unten. Durch Drehen nach links kann die Arretierung geöffnet und der Sucher gedreht werden.

⑱ Lampenschuh

Zum Anbringen einer Videolampe usw.

⑲ Sucheranschluß (12-pol)

Zum Anschluß des Suchers BVF-50.

- Wird ein Sucher an diesen Anschluß angeschlossen, so nehmen Sie auf jeden Fall den mitgelieferten 1,5"-Sucher von der Kamera ab. Schließen Sie nicht gleichzeitig zwei Sucher an.

⑳ Fernbedienungsanschluß [REMOTE] (6-pol)

Wird hier eine geeignete Einheit angeschlossen, so kann eine fernbediente Feineinstellung der Blende, des Schwarzpegels und der Verstärkung vorgenommen werden.

㉑ Schwarzpegelregler [PEDESTAL]

Mit diesem Regler wird der Schwazpegel eingestellt.

㉒ Testausgang [TEST OUT] (BNC)

Hier liegen die folgenden, am ENC/REG-Schalter der eingebauten Leiterplatte gewählten Signale an.

REG: Die an den R/OFF/B- und G/OFF/–G-Schaltern gewählten R, G, B, R–G oder B–G Testsignale liegen an.

ENC: Das kodierte Videosignal liegt an. Verwenden Sie normalerweise diese Stellung.

㉓ Objektivanschlüsse [LENS] (6-pol, 12-pol)

Schließen Sie das Kabel des Objektivs an den 6-poligen bzw. 12-poligen Anschluß an.
Ihr Sony Händler gibt Ihnen gerne Auskunft darüber, welche Objektive verwendet werden können.

㉔ Schalter für automatische Zentrierung [AUTO CENT]

PRESET: Bei Nichtverwendung des gespeicherten Zentrierwertes.

MEMORY: Nach der automatischen Zentrierungseinstellung wird der abgespeicherte Zentrierwert verwendet.

START: Zur automatischen Zentrierungseinstellung ist die Kamera auf ein geeignetes Objekt auszurichten und der Schalter auf START zu stellen. Beim Loslassen kehrt der Schalter automatisch in die Mittelstellung zurück.

㉕ Schalter für automatischen Schwarz- und Weißabgleich [AUTO W/B BAL]

WHT: Für automatischen Weißabgleich stellen Sie den WHITE BAL-Schalter ③ auf AUTO und diesen Schalter auf WHT. Der eingestellte Wert wird automatisch abgespeichert.

BLK: Für automatischen Schwarzabgleich und automatische Schwarzeinstellung stellen Sie diesen Schalter auf BLK. Der eingestellte Wert wird automatisch im Memory abgespeichert.

- Beim Loslassen kehrt der Schalter automatisch von der Stellung WHT oder BLK in die Mittelstellung zurück.

㉖ Videorecorder-Starttaste [VTR]

Drücken Sie diese Taste, um mit der Aufnahme zu beginnen. Zum Beenden der Aufnahme drücken Sie dieselbe Taste erneut. Diese Taste hat dieselbe Funktion wie die VTR-Taste am Objektiv. Zum Betätigen dieser Taste entfernen Sie die Abdeckung.

㉗ Objektivfassung (Spezial-Bajonettfassung)

Schließen Sie hier das Objektiv an.

㉘ Aufnahmekontrollampe

Diese Lampe leuchtet oder blinkt, wenn die REC-Anzeige im Sucher leuchtet oder blinkt.

㉙ Konturenanhebungsschalter [PEAKING]

Zur leichteren Schärfeneinstellung können mit diesem Schalter die Bildkonturen angehoben werden. Bei jedem Drücken dieses Schalters wird die Funktion abwechselnd ein- und ausgeschaltet.

㉚ AUDIO/FILTER-Schalter*

AUDIO: Der Aufnahmepegel von Tonkanal 1 kann am AUDIO CH-1-Regler eingestellt werden. Die FILTER/AUDIO-Anzeige im Sucher zeigt den Tonaufnahmepegel an.

FILTER: An der FILTER/AUDIO-Anzeige im Sucher wird die am FILTER-Wähler eingestellte Filternummer angezeigt. Verwenden Sie stets diese Position, außer wenn die Kamera zusammen mit einem BVV-1PS der Serien-Nr. 50000 oder höher oder einem BVV-1APS verwendet wird.

㉛ Aufnahmepegelregler für Tonkanal 1 [AUDIO CH-1]*

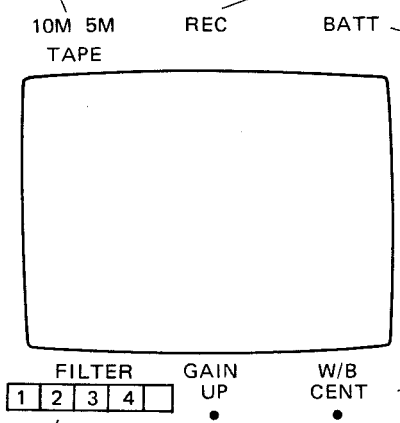
Wenn der AUDIO CH-1 MANU/AUTO-Wähler an der BVV-1PS/BVV-1APS auf MANU und der AUDIO/FILTER-Schalter ㉚ auf AUDIO gestellt ist, so kann der Aufnahmepegel von Tonkanal 1 manuell eingestellt werden. Beobachten Sie bei dieser Einstellung die FILTER/AUDIO-Anzeige im Sucher.

* Dieser Schalter und dieser Regler arbeiten nur, wenn die BVP-3AP zusammen mit einem BVV-1PS der Serien-Nr. 50000 oder höher oder mit einem BVV-1APS verwendet wird.

Anzeigen im Sucher

Anzeigen für verbleibende Aufnahmezeit
Zeigt das zur Aufnahme noch zur Verfügung stehende Band in Minuteneinheiten an. Die Anzeigen arbeiten nur, wenn BVP-3AP und BVV-1PS/BVV-1APS direkt über den 50-poligen Anschluß verbunden sind.

Aufnahmeanzeige [REC] (rot)
Diese Anzeige leuchtet während Aufnahme und blinkt, wenn eine der Warnlampen am BVV-1PS/BVV-1APS blinkt oder leuchtet. Genauere Informationen finden Sie in der Bedienungsanleitung des Videorecorders.



Batterieanzeige [BATT] (rot)
Sind die Batterien erschöpft, so beginnt diese Anzeige einige Minuten, bevor die Spannung den zum einwandfreien Funktionieren notwendigen Wert unterschreitet, zu blinken. Ist der Wert überschritten, leuchtet die Anzeige konstant auf.

Anzeige für Weiß/Schwarzabgleich und Zentrierung [W/B CENT] (orange)
Leuchtet auf, wenn der automatische Weißabgleich, Schwarzabgleich und die Zentriereinstellung beendet sind. Nach 5 Sekunden erlischt die Anzeige. War keine automatische Einstellung möglich, so blinkt die Anzeige ca. 5 Sekunden lang.

FILTER/AUDIO-Anzeige
Wenn der AUDIO/FILTER-Schalter auf AUDIO gestellt ist, so wird der Tonpegel angezeigt. Steht der Schalter dagegen auf FILTER, so wird die am FILTER-Wähler gewählte Filternummer angezeigt.

Verstärkungsanzeige [GAIN UP]
Diese Anzeige leuchtet, wenn der GAIN-Wähler auf „9" oder „18" eingestellt ist.

Bedeutung der Anzeige für verbleibende Aufnahmezeit

Diese Anzeigen arbeiten nur, wenn BVP-3AP und BVV-1PS/BVV-1APS direkt über die 50-poligen Anschlüsse verbunden sind.

Noch zur Verfügung stehende Zeit (Minuten)	20	15	10	5	2	0
Anzeigen	10M 5M	10M	5M	5M (blinkt mit 1 Hz)		
Aufnahmeanzeige	REC				REC* (blinkt mit 4 Hz)	

: Blinkt mit 1 Hz

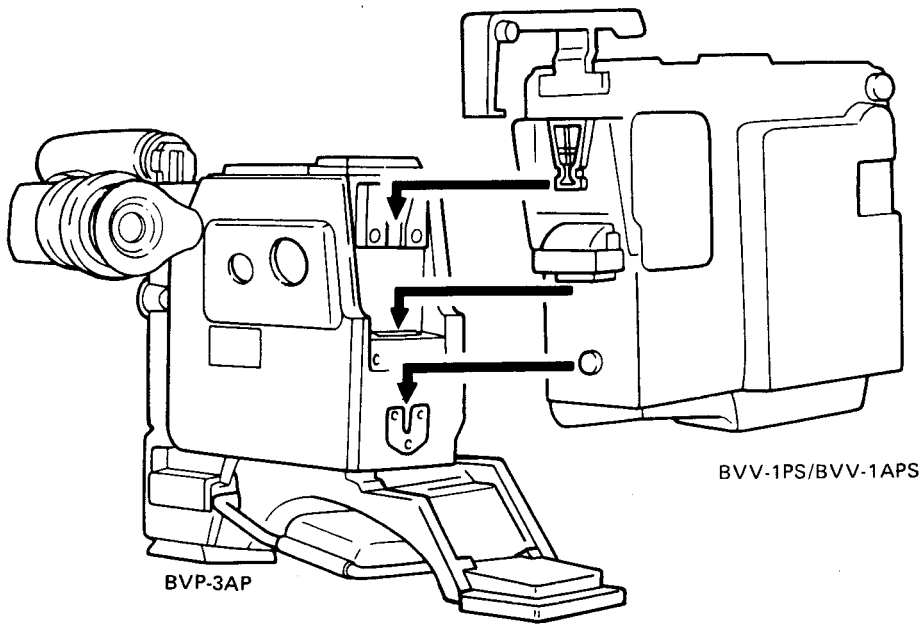
* : Blinkt mit 4 Hz

1-3. ZUSAMMENBAU

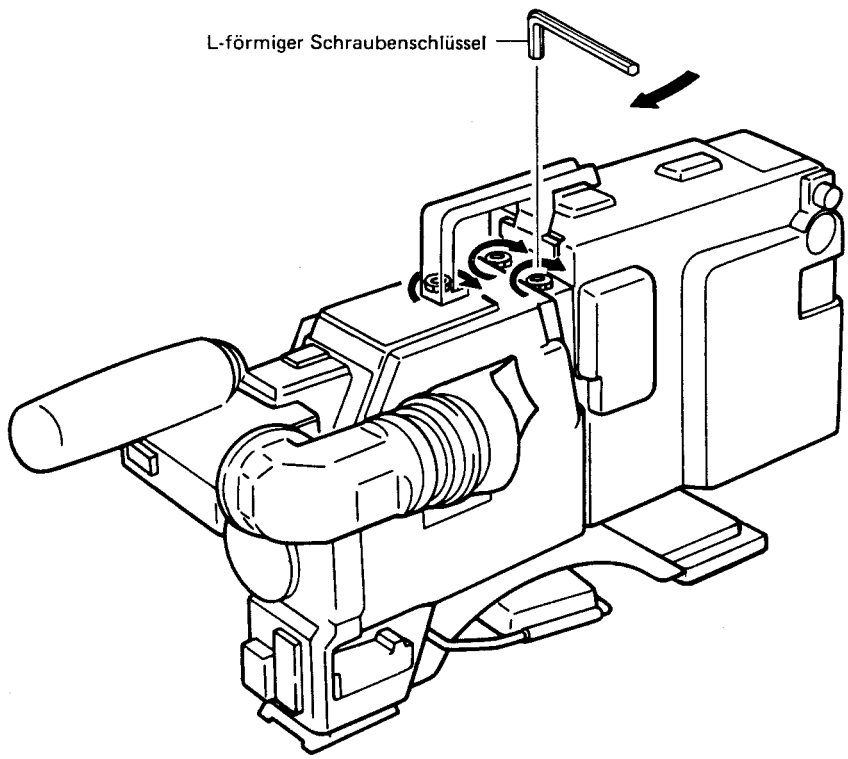
1-3-1. Zusammenschluß mit Videorecorder BVV-1PS/BVV-1APS

Im folgenden wird beispielhaft der Zusammenschluß der BVP-3AP mit dem tragbaren Videorecorder BVV-1PS/BVV-1APS gezeigt. Um die BVV-3AP zusammen mit einem anderen Gerät zu betreiben, lesen Sie bitte die mit dem jeweiligen Gerät mitgelieferte Bedienungsanleitung.

1.

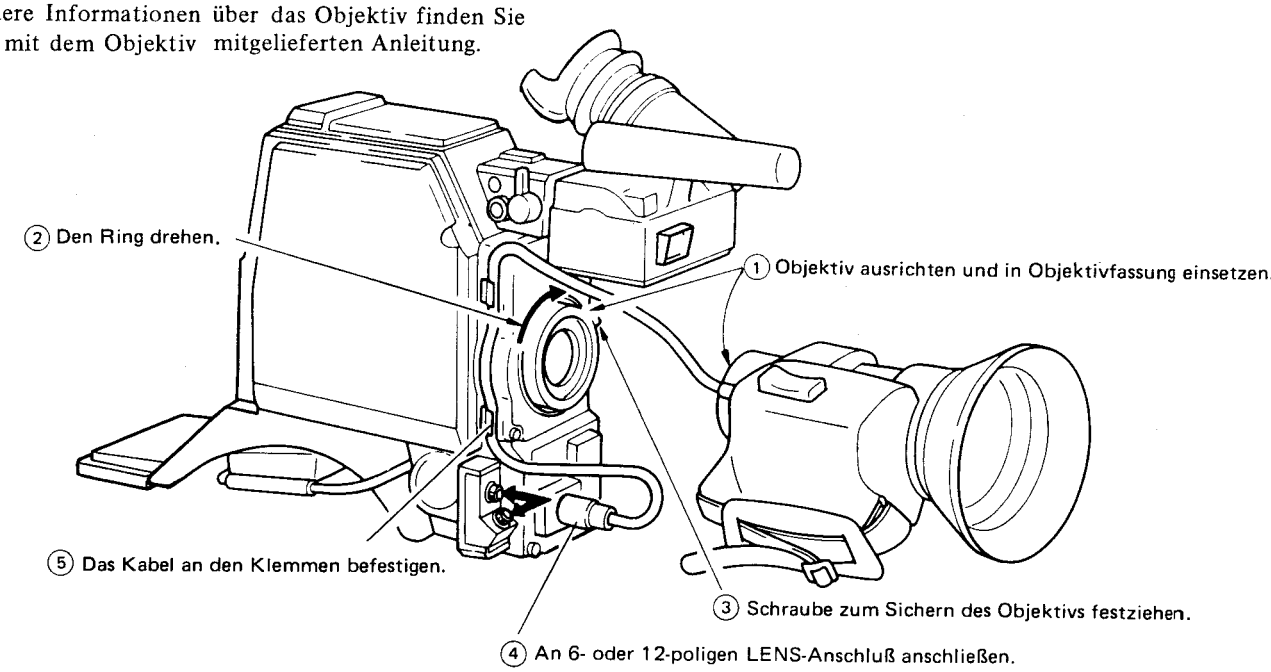


2. Ziehen Sie die beim BVV-1PS/BVV-1APS mitgelieferten Schrauben gut fest.

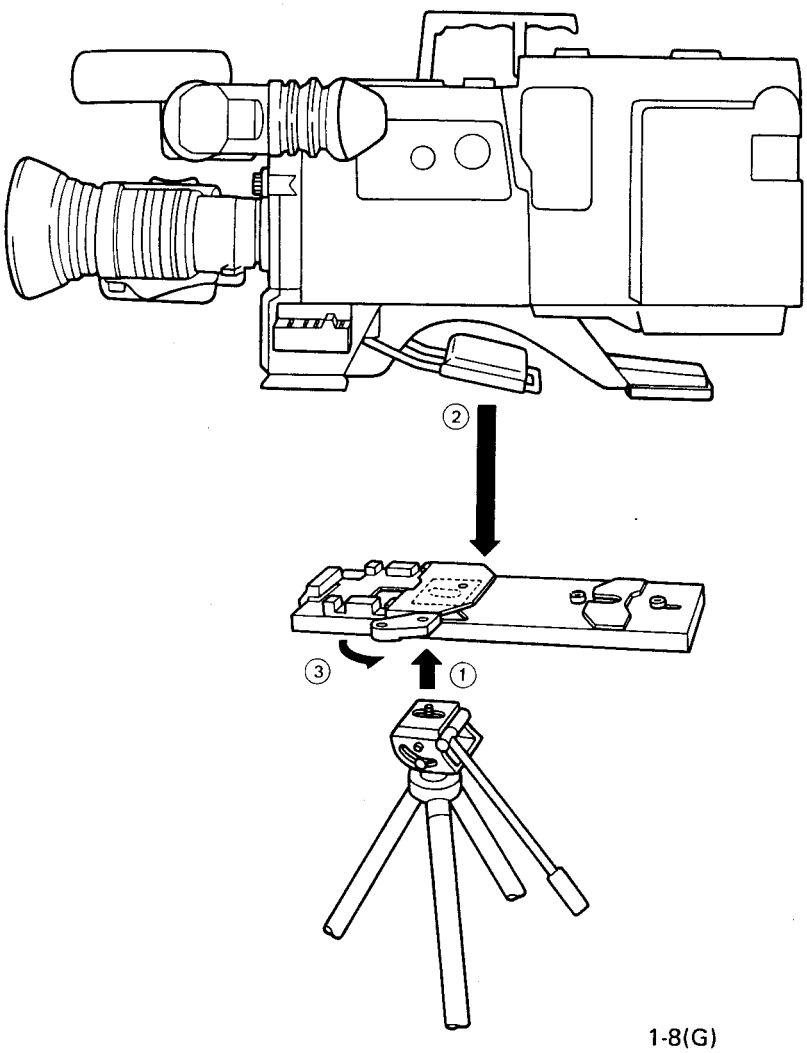


1-3-2. Anbringung des Objektivs

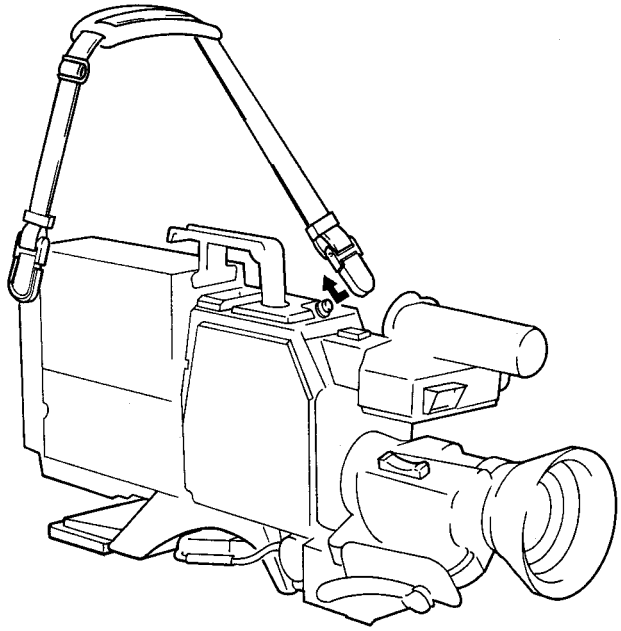
- Genauere Informationen über das Objektiv finden Sie in der mit dem Objektiv mitgelieferten Anleitung.

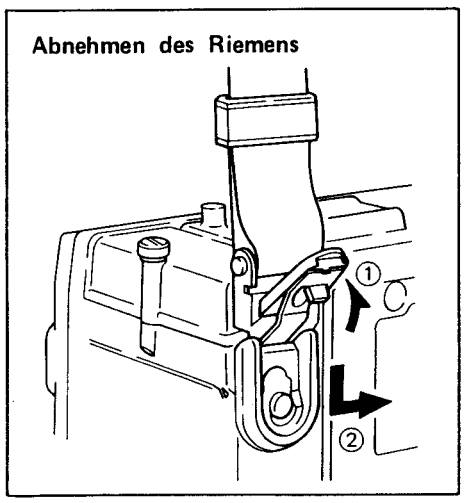


1-3-3. Anbringung eines Stativs



1-3-4. Anbringung des Schulterriemens



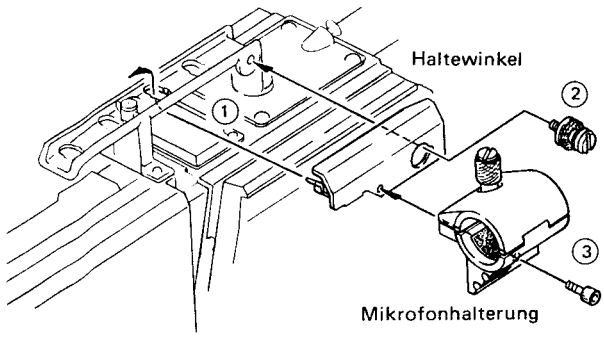


1-3-5. Anbringung eines Außenmikrofons

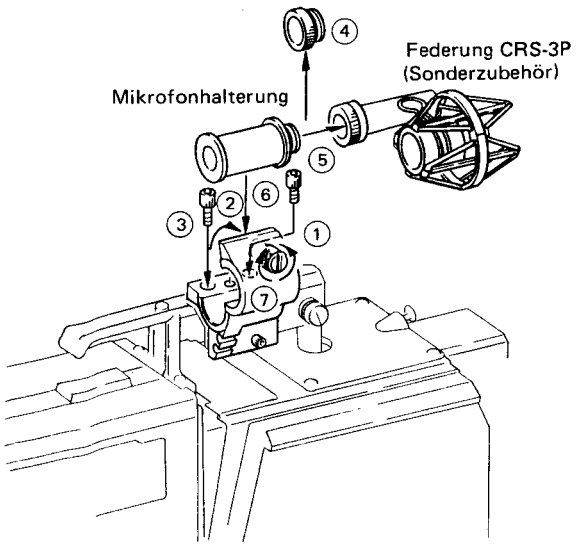
Bei Verwendung einer Federung

Wenn eine BVP-3AP mit dem BVV-1PS/BVV-1APS als eine BVW-3P/BVW-3AP verwendet wird, bringen Sie ein Mikrofon mit Federung an der Kamera an, und Keine störenden Vibrationen vom Videorecorder können zum Mikrofon gelangen.

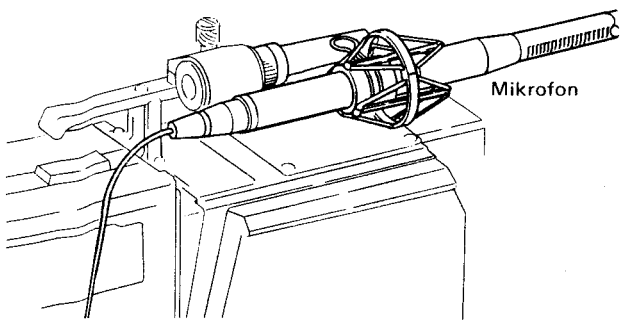
1. Bringen Sie Haltewinkel und Mikrofonhalterung jeweils mit einer Schraube am Griff an.



2. Befestigen Sie die Mikrofonhalterung, klemmen Sie die Federung an der Halterohr fest und drehen Sie die Schraube zu.



3. Bringen Sie das Mikrofon an der Federung an.

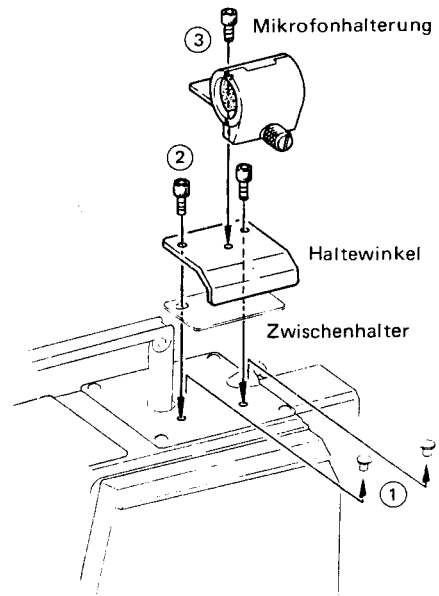


4. Stecken Sie das Mikrofonkabel in den MIC IN-Anschluß des Videorecorders.

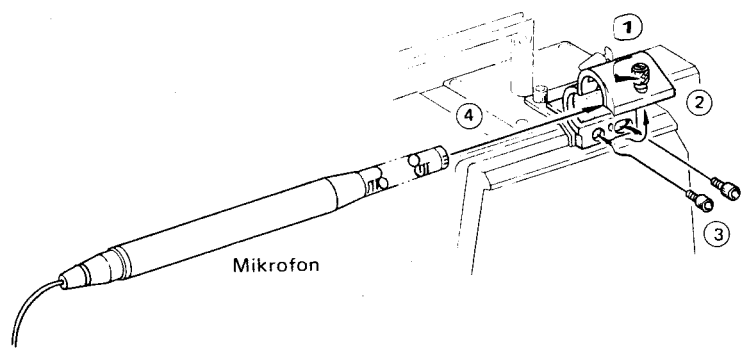
Wenn keine Federung verwendet wird

Diese Methode empfiehlt sich nur, wenn die BVP-30P über den CA-3 oder CA-30P an die Videorecorder angeschlossen wird. Wenn die Kamera dagegen direkt mit einem BVV-1PS/BVV-1APS zusammengeschlossen wird, sollte auf jeden Fall die Federung verwendet werden, da sonst Laufgeräusche von dem Videorecorder mit aufgenommen werden.

1. Nehmen Sie die Kappen an der Kamera ab und bringen Sie Haltewinkel sowie Mikrofonhalterung an der Kamera an.



2. Befestigen Sie die Mikrofonhalterung, klemmen Sie das Mikrofon in der Mikrofonhalterung fest und drehen Sie die Schraube zu.
   Ist der Mikrofondurchmesser zu klein, klemmen Sie das Mikrofon im mitgelieferten Adapter ein.

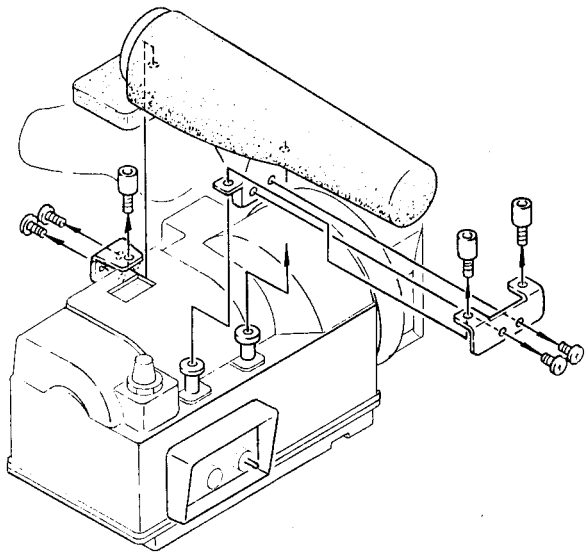


3. Stecken Sie das Mikrofonkabel in den MIC IN-Anschluß am Kameraadapter.

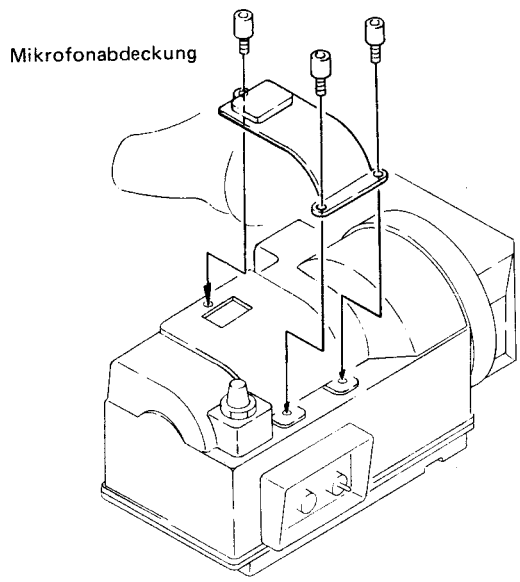
Abnehmen des eingebauten Mikrofons

Bei Anschluß eines Außenmikrofons wird das Signal vom eingebauten Mikrofon automatisch abgeschaltet. Das Mikrofon kann wie folgt beschrieben abgenommen werden. Bei abgenommenem Mikrofon bringen Sie die mitgelieferte Abdeckung an.

1. Das eingebaute Mikrofon und den Anschluß abnehmen.



2. Die Mikrofonabdeckung abnehmen.



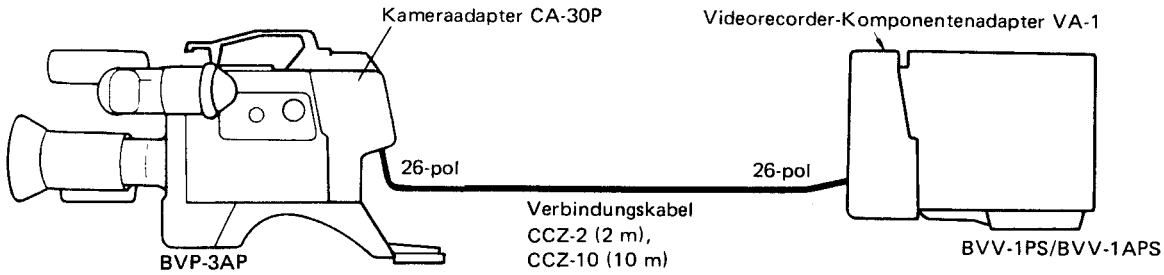
1-4. STROMVERSORGUNG

Der Strom erfolgt von dem Gerät, das am 50-poligen Anschluß an der BVP-3AP angeschlossen ist. Lesen Sie bitte die Bedienungsanleitung des betreffenden Geräts durch.

1-5. ANSCHLÜSSE

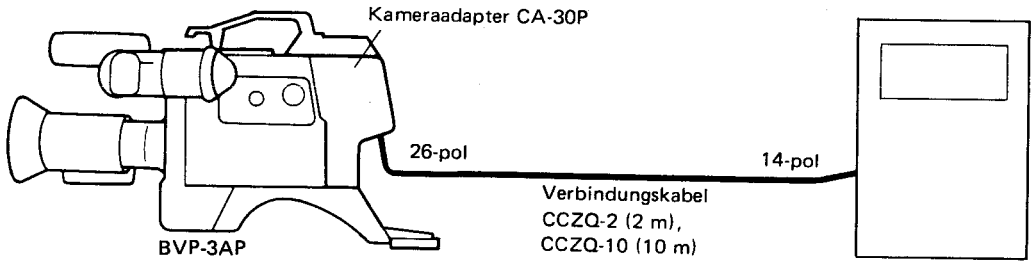
Außer dem direkten Zusammenschluß von BVP-3AP und BVV-1PS/BVV-1APS über die 50-poligen Anschlüsse kann die BVP-3AP auch folgendermaßen verwendet werden:

Anschluß des BVV-1PS/BVV-1APS unter Verwendung eines Verbindungskabels



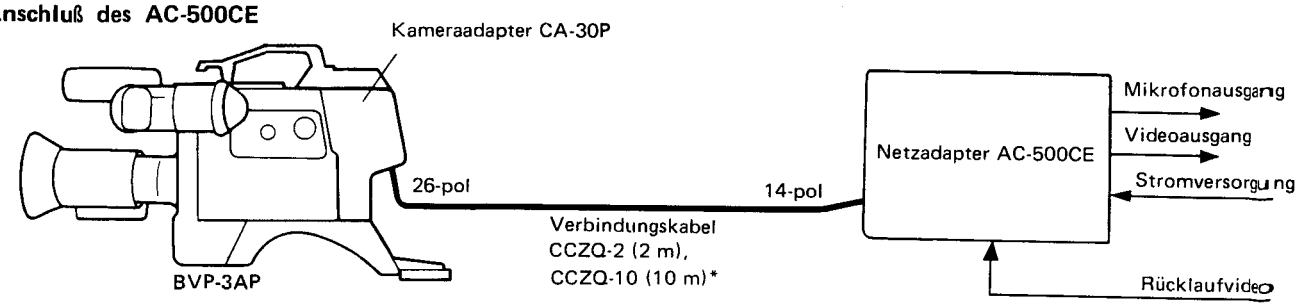
- Der FBAS/Komponenten-Adapter VA-1VP kann auf die gleiche Weise angeschlossen werden.

Anschluß eines herkömmlichen portablen Videorecorders



- Bei Versorgung der Kamera vom Videorecorder über ein Kamerakabel von mehr als 10 Metern Länge ist die optimale Bildqualität nicht mehr sichergestellt, sobald die BATT-Anzeige im Sucher zu Blinken beginnt.

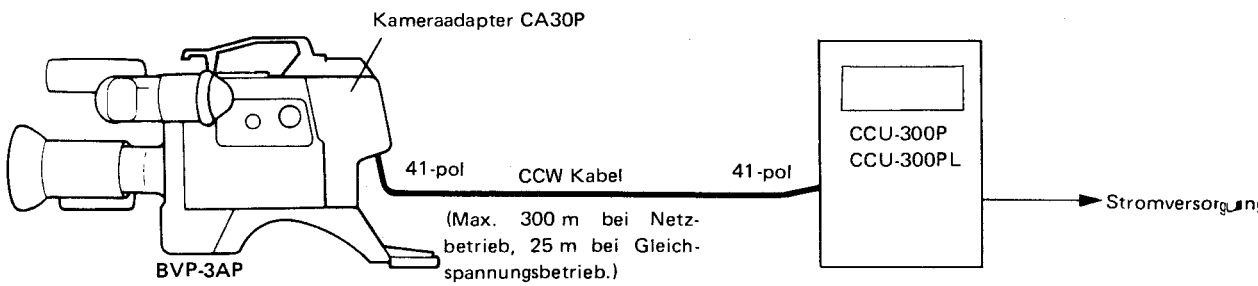
Anschluß des AC-500CE



* Um ausschließlich den Versorgungsstrom an die Kamera zu leiten, verbinden Sie CA-30P und AC-500CE mit einem 4-poligen Kabel.

- Wenn der AC-500CE über ein 4-poliges Kabel mit dem Videorecorder verbunden wird, so wird der Videorecorder mit Strom versorgt.

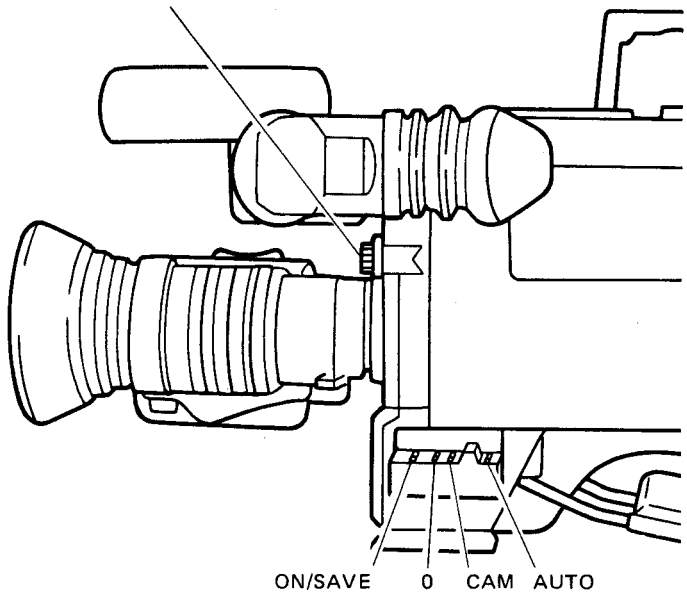
Anschluß einer CCU-300P/CCU-300PL



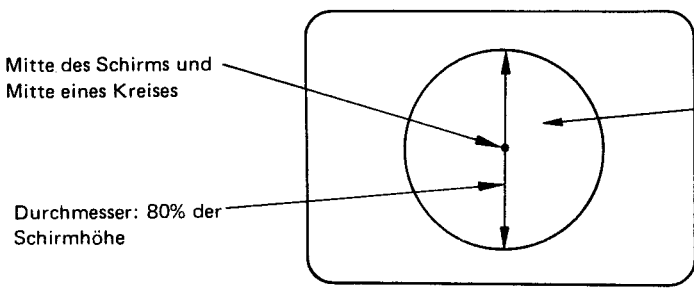
1-6. EINSTELLUNGEN

1-6-1. Weiß- und Schwarzabgleich

1. Stellen Sie den FILTER-Wähler entsprechend den Lichtverhältnissen ein.



2. Stellen Sie die Schalter folgendermaßen ein.
3. Zoomen Sie unter den gleichen Lichtverhältnissen wie bei der späteren Aufnahme auf das weiße Testbild. Statt des weißen Testbildes kann auch eine andere weiße Fläche wie z.B. ein weißes Tuch oder eine weiße Wand verwendet werden.
   Folgende minimale weiße Fläche ist zur Einstellung erforderlich.



Bringen Sie den weißen Gegenstand in den Kreis. Der weiße Gegenstand soll mindestens 10% der Schirmfläche ausfüllen.

- In diesem Kreis darf kein heller Gegenstand erscheinen.

4. Ist eine Automatikblende vorhanden, so stellen Sie den Auto/Manuell-Schalter auf AUTO. Falls nicht, stellen Sie die Blende manuell ein.
5. Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Beim Loslassen kehrt der Schalter automatisch in die Mittelstellung zurück. Nach ca. 5 Sekunden ist der Schwarzabgleich automatisch durchgeführt, und die W/B CENT-Anzeige leuchtet im Sucher auf. Nach ca. 5 Sekunden erlischt die Anzeige wieder. Der eingestellte Wert wird abgespeichert.
   - Wenn der Schalter auf BLK gestellt wird, schließt sich der Verschluß.

6. Stellen Sie den AUTO W/B BAL-Schalter auf WHT. Nach ca. 1 Sekunde ist der Weißabgleich genau wie oben automatisch durchgeführt und der eingestellte Wert wird abgespeichert.

Weiß- und Schwarzabgleich sind damit beendet.

- Sobald die W/B CENT-Anzeige leuchtet, kann mit der nächsten Einstellung begonnen werden. Die Anzeige erlischt, wenn der Schalter in die andere Position gestellt wird, und leuchtet nach Beendigung der Einstellung wieder auf.
- Bei Verwendung eines Zoomobjektivs können Regelschwingungen auftreten. Ändern Sie in diesem Fall die Einstellung des AUTO IRIS GAIN-Reglers am Objektiv. (Genauere Informationen dazu finden Sie in der Bedienungsanleitung des Objektivs.)
- Wenn der AUTO W/B BAL-Schalter auf BLK gestellt wird, so ändert sich automatisch die Einstellung des GAIN-Wählers, und das Sucherbild ist möglicherweise gestört. Dies stellt jedoch kein Problem dar.
- Wenn sich die Beleuchtungsverhältnisse ändern, so führen Sie nur den Weißabgleich neu durch. Eine neue Einstellung des Schwarzabgleichs ist nicht erforderlich.

Wenn die W/B CENT-Anzeige blinkt

Überprüfen Sie, ob der richtige Filter gewählt wurde, und führen Sie Weiß- und Schwarzabgleich erneut durch.

Wenn der WHITE BAL-Schalter auf PRESET gestellt wird

In der Stellung „1" des FILTER-Wählers erhält man einen Weißabgleich für 3200°K. Zum Schwarzabgleich ist lediglich der AUTO W/B BAL-Schalter auf BLK zu stellen.

Abspeichern der Weiß- und Schwarzabgleichwerte

Schwarz- und Weißabgleichwerte können in der BVP-3AP abgespeichert werden. Es sind vier Memories vorhanden, so daß für jeden Filter ein Weiß- und Schwarzabgleichwert abgespeichert werden kann. Die abgespeicherten Werte bleiben bis ca. eine Woche nach Abschalten der Stromzufuhr bzw., bis eine Neueinstellung durchgeführt wird, erhalten.

1-6-2. Schwarzeinstellung

Mit dem AUTO W/B BAL-Schalter wird die Schwarzeinstellung automatisch mit dem Schwarzabgleich durchgeführt.

Zur manuellen Schwarzeinstellung verwenden Sie den Regler auf der eingebauten Platine. Genauere Informationen finden Sie im Teil 2.

1-6-3. Zentrierung

Die R-, G- und B-Aufnahmeröhren werden werkseitig zentriert, so daß normalerweise keine Einstellung erforderlich ist. Sollte dennoch eine Einstellung notwendig werden, so gehen Sie folgendermaßen vor.

Stellen Sie zunächst den Weißabgleich wie unter 1-6-1. beschrieben ein.

1. Stellen Sie den AUTO CENT-Schalter auf MEMORY.
2. Stellen Sie den Blenden-Auto/Manuell-Schalter am Objektiv auf AUTO. Die Blende sollte dabei nicht ganz geöffnet sein. Ist sie ganz geöffnet, so erhöhen Sie die Beleuchtungsstärke.
3. Nehmen Sie das mitgelieferte Testbild oder einen Gegenstand auf.

   Verwendung des mitgelieferten Testbildes

   Richten Sie die Kamera so aus, daß das mitgelieferte Testbild den gesamten Bildschirm füllt.

   Ohne Verwendung des mitgelieferten Testbildes

   Richten Sie die Kameraposition so aus, daß der Gegenstand in einem Kreis liegt, dessen Mittelpunkt sich in der Mitte des Bildschirms befindet und dessen Durchmesser 80% der Bildschirmhöhe beträgt.
   - Verwenden Sie einen Gegenstand, der horizontale und vertikale Linien mit geeignetem Kontrast aufweist.
   - Wenn möglich verwenden Sie ein Schwarzweißbild, so daß die R-, G- und B-Pegel nahezu gleich sind. Ist der Gegenstand einfarbig oder ist eine der Farben sehr dunkel, so kann dies zu Zentrierungsfehlern führen.
   - Verwenden Sie keinen sich bewegenden Gegenstand, und bewegen Sie auch die Kamera nicht während der Einstellung.
   - Verwenden Sie keinen Gegenstand mit sehr dünnen Linien, also auch kein Testbild zur Farbdeckungseinstellung.
4. Stellen Sie den AUTO CENT-Schalter auf START. Beim Loslassen kehrt dieser Schalter automatisch in die MEMORY-Stellung zurück. Nach ca. 10 Sekunden ist die Zentrierung automatisch eingestellt, und im Sucher leuchtet die W/B CENT-Anzeige auf. Die Anzeige erlischt nach ca. 5 Sekunden wieder.
   - Während die Zentrierung durchgeführt wird, wird die Schärfeanhebung ausgeschaltet und die in einem Kreis mit einem Durchmesser von 70% der Bildschirmhöhe liegenden Kanten werden schärfer abgebildet.
5. Führen Sie den Weißabgleich erneut durch, da Zentrierungsfehler den Weißabgleich beeinflussen können.

Wenn die W/B CENT-Anzeige blinkt

Es wurde ein ungeeigneter Testgegenstand verwendet oder . . .

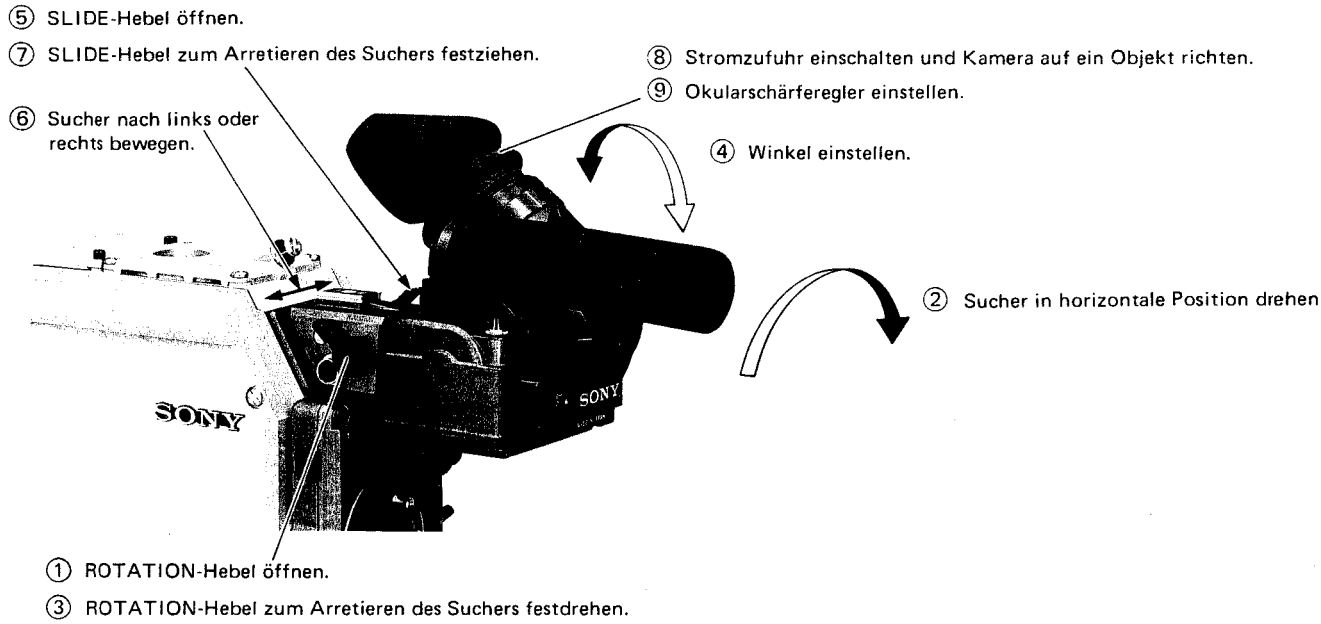
- der Gegenstand besitzt nicht genug Kanten und nicht genug Kontrast.
- die Blende ist falsch eingestellt.
- der Gegenstand ist nicht scharfgestellt.
- der Gegenstand hat sich während der Einstellung bewegt.
- der Zentrierungsbereich wurde überschritten.

Stellen Sie die Ursache fest, und nehmen Sie den Abgleich erneut vor.

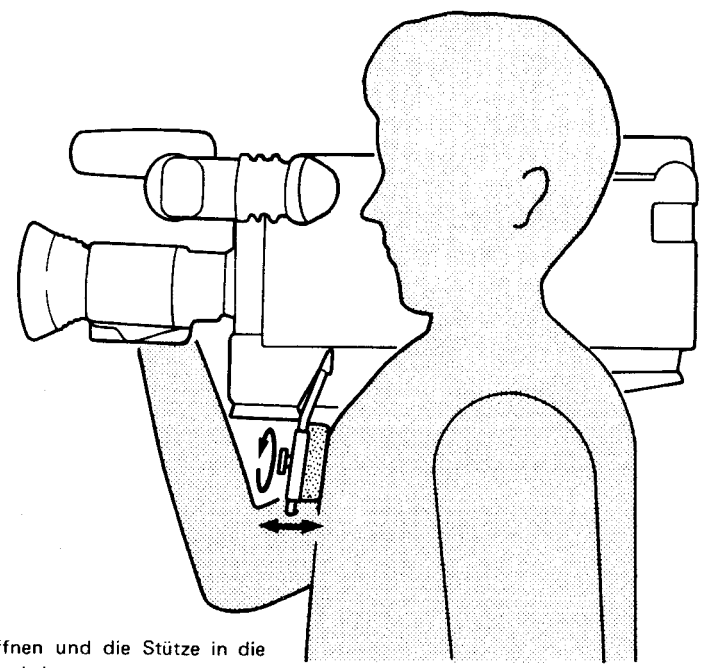
Abspeichern des Zentrierungswertes

Der eingestellte Zentrierungswert kann genau wie die Weiß- und Schwarzabgleichwerte gespeichert werden, wobei die Speicherung noch ca. eine Woche nach Abschalten der Stromzufuhr erhalten bleibt. Wenn dieser Zeitraum überschritten wird, erhält man im Memory den werkseitig voreingestellten Wert.

1-6-4. Suchereinstellungen



1-6-5. Ausrichten der Stütze

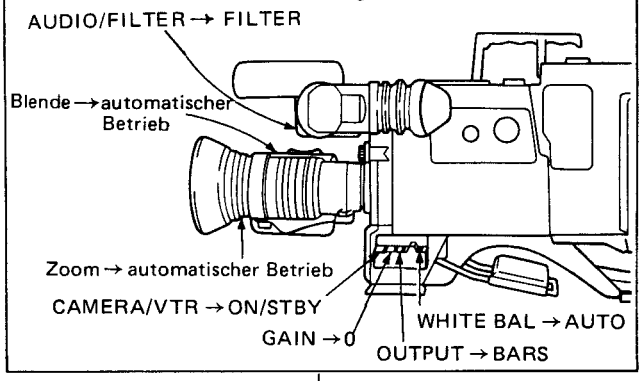


Schraube öffnen und die Stütze in die optimale Lage bringen.

1-7. FUNKTIONSKONTROLLEN

- Im folgenden wird ein Bedienungsbeispiel gegeben. Genauere Informationen zur Bedienung des Objektivs finden Sie in der mit dem Objektiv mitgelieferten Bedienungsanleitung.

1. Stellen Sie die Schalter folgendermaßen ein:



2. Stellen Sie den Sucher ein.

3. Vergewissern Sie sich, daß die Farbbalken auf dem Sucherschirm erscheinen.

4. Stellen Sie den BRIGHT- und CONTR-Regler so ein, daß die Farbbalken auf dem Sucherschirm klar abgebildet werden.

5. Wechseln Sie die FILTER-Wählereinstellung von 1→2→3→4, und überprüfen Sie, ob der richtige Wert im Sucher angezeigt wird.

6. Stellen Sie den OUTPUT-Wähler auf CAM.

7. Richten Sie die Kamera auf ein Motiv.

8. Stellen Sie das Motiv durch Drehen des Fokussierrings scharf ein. Überprüfen Sie, ob das Bild auf dem Sucherschirm erscheint.

9. Überprüfen Sie das Motorzoom.

10. Stellen Sie das Zoom auf manuellen Betrieb.

11. Überprüfen Sie das manuelle Zoomen.

12. Stellen Sie das Zoom auf automatischen Betrieb.

13. Richten Sie die Kamera auf Motive unter verschiedenen Helligkeitsniveaus und überprüfen Sie, ob die automatische Blendeneinstellung funktioniert.*

14. Stellen Sie die Blende auf manuellen Betrieb.

15. Drehen Sie den Blendenring, um die manuelle Blendeneinstellung zu überprüfen.

16. Drücken Sie die Sofort-Auto-Taste und halten Sie sie in gedrückter Stellung, um kurz auf automatische Blendeneinstellung zu schalten. Richten Sie die Kamera auf Motive unter verschiedenen Helligkeitsniveaus, um die Einstellung zu überprüfen.

17. Stellen Sie die Blende auf automatischen Betrieb.

18. Stellen Sie den GAIN-Wähler auf 9, dann auf 18. Überprüfen Sie, ob sich die Blende jeweils um eine Stufe schließt und ob die GAIN UP-Anzeige leuchtet.

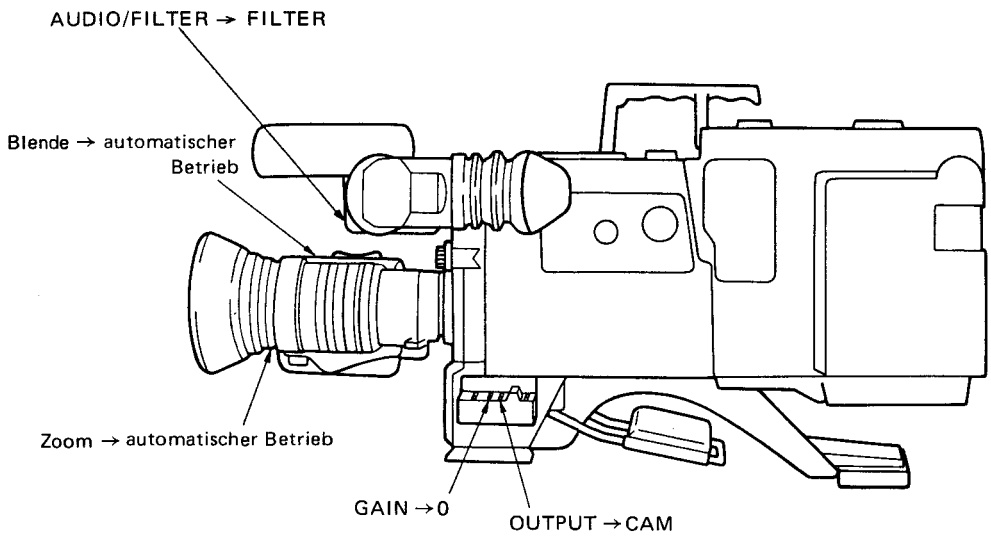
19. Stellen Sie den GAIN-Wähler auf 0.

* Bei Verwendung eines Objektivs mit 6-poligem Anschluß können Regelschwingungen auftreten. Stellen Sie in diesem Fall den AUTO IRIS GAIN-Regler am Objektiv ein. (Genauere Informationen finden Sie in der Bedienungsanleitung des Objektivs.)

1-8. BETRIEB

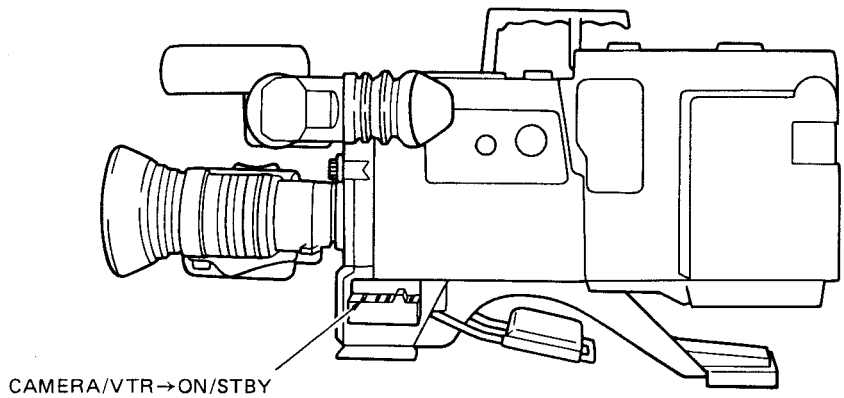
1-8-1. Vorbereitung

Stellen Sie die Schalter vor dem Betrieb folgendermaßen ein:



1-8-2. Kameraaufnahme

1. Schalten Sie die Kamera und die anderen Geräte ein.



2. Setzen Sie eine Cassette ein.

3. Wählen Sie den entsprechenden Filter.

4. Stellen Sie den Weiß- und Schwarzabgleichwert ein.
Wenn der Weiß- und Schwarzabgleichwert gespeichert ist,
stellen Sie den WHITE BAL-Schalter auf AUTO.
Wenn der Weiß- und Schwarzabgleichwert nicht gespeichert ist, Sie jedoch schnell mit der Aufnahme beginnen wollen,
stellen Sie den WHITE BAL-Schalter auf PRESET und den AUTO W/B BAL-Schalter auf BLK. Man erhält dann einen Weiß- und Schwarzabgleich für 3200°K.

Durchführung des Weiß- und Schwarzabgleichs

① Stellen Sie den WHITE BAL-Schalter auf AUTO.
② Richten Sie die Kamera auf einen weißen Gegenstand.
③ Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Sobald die W/B CENT-Anzeige im Sucher aufleuchtet, ist der Schwarzabgleich durchgeführt.
④ Stellen Sie den AUTO W/B BAL-Schalter auf WHT. Sobald die W/B CENT-Anzeige im Sucher aufleuchtet, ist der Weißabgleich durchgeführt.

- Genauere Informationen finden Sie unter „1-6-1. Weiß- und Schwarzabgleich".

5. Richten Sie die Kamera auf das Motiv und stellen Sie Schärfe und Zoom ein.

6. Drücken Sie die VTR-Taste, um mit der Aufnahme zu beginnen. Die REC-Anzeige im Sucher leuchtet während der Aufnahme.

7. Um die Aufnahme zu beenden, drücken Sie die VTR-Taste erneut.

Aufnahme bei schwacher Beleuchtung

Wenn die Beleuchtung so schwach ist, daß man bei normaler Einstellung kein klares Bild erhält, stellen Sie den GAIN-Schalter auf „9" oder „18". In der Position 9 des GAIN-Schalters wird der Videoausgangspegel um 9 dB und in der Position 18 um 18 dB erhöht.

- Normalerweise ist der Wähler auf „0" zu stellen.

Überprüfung des Videopegels

Ein Streifenmuster erscheint an der Stelle des Sucherbildschirms, an der Videopegel des Bildes 70% (IRE Einheit) beträgt. Dies stellt eine Hilfe bei der manuellen Blendeneinstellung dar.

Das Zebramuster kann am TALLY/ZEBRA ON/OFF-Schalter abgeschaltet werden. Dies ist jedoch nicht möglich, wenn ein spezieller Schalter an einer internen Leiterplatte auf OFF gestellt wird. Genauere Informationen dazu finden Sie im Teil 2.

1-9. VORSICHTSMASSNAHMEN

Die Kamera nie direkt gegen die Sonne halten.
Wenn man die Kamera direkt gegen die Sonne hält oder auf eine andere starke Lichtquelle richtet, kann die Aufnahmeröhre beschädigt werden. Durch Daueraufnahmen von hell beleuchteten Motiven kann die Aufnahmeröhre ebenfalls Schaden nehmen. Falls Aufnahmen bei heller Beleuchtung gemacht werden müssen, schließen Sie die Blende soweit wie möglich.

Gehen Sie sorgsam mit der Kamera um und vermeiden Sie Erschütterungen.

Nach dem Gebrauch der Kamera
Den Strom des an die Kamera angeschlossenen Gerätes abschalten.

Betriebsumgebung und Aufbewahrungsplatz
Betreiben Sie die Kamera nicht an den nachstehend aufgeführten Plätzen, und bewahren Sie sie dort auch nicht auf:

Extrem heiße oder feuchte Plätze (die Betriebstemperatur reicht von −20°C bis +40°C).
Plätze, an denen die Kamera direkter Sonnenbestrahlung, übermäßig viel Staub und Erschütterungen ausgesetzt ist.
Plätze, an denen die Kamera starken Magnetfeldern ausgesetzt ist.

Bewahren Sie die Kamera waagerecht liegend auf und sorgen Sie für ausreichende Luftzufuhr.

Reinigen Sie das Sucherobjektiv mit einer handelsüblichen Objektiv-Reinigungsflüssigkeit.
Verwenden Sie keine Lösemittel wie Alkohol, Benzin oder Verdünner.

1-10. TECHNISCHE DATEN

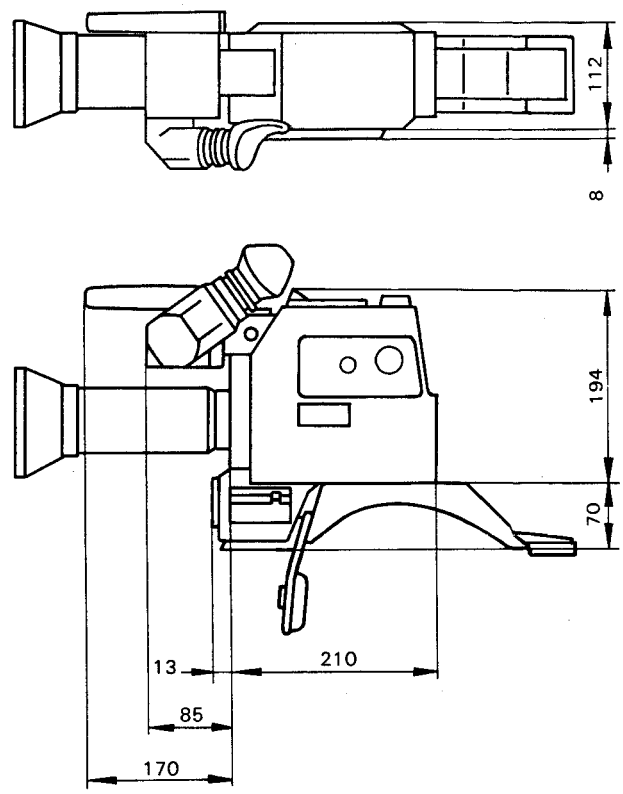
Kamera

Aufnahmeröhre	2/3" Saticon (magnetische Fokussierung, statische Ablenkung)
System	3-Röhren RGB-System (mit Quarzfilter)
Spektralsystem	f 1,4 Prismensystem
Eingebaute Filter	1: 3200°K 2: 5600°K + 1/4ND 3: 5600°K 4: 5600°K + 1/16ND
Objektivbefestigung	Spezial-Bajonettverschluß
Videoausgang	PAL 1,0 Vss, 75 Ohm, unsymmetrisch, Video positiv, zwei Ausgänge (TEST OUT, VTR)
Anschlüsse	VTR: 50-pol (Videoausgang, Mikrofonausgang, Sync-Ausgang, Stromversorgungseingang) TEST OUT: BNC-Buchse LENS: 6-pol, 12-pol REMOTE: 6-pol
Empfindlichkeit	2000 Lux mit f4,5 (typisch), 89,9% Refl.
Minimale Objektbeleuchtung	30 Lux (f1,4 +18 dB Verstärkung)
Video Signal-Rauschabstand	57 dB (typisch)
Horizontale Auflösung	650 (Mitte)
Farbdeckung	0,1% in Zone I (in einem Kreis, der einen Durchmesser von 80% der Blidhöhe besitzt) 0,15% in Zone II (in einem Kreis, dessen Durchmesser gleich der Bildhöhe ist) 0,3% in Zone III (sonstiger Bereich)
Geometrische Verzerrungen	Weniger als 1%
Stromversorgung	12 V Gleichspannung (10,5 bis 17 V)
Leistungsaufnahme	20 W
Warmlaufzeit	ca. 3,5 Sekunden vom Vorheizbetrieb
Betriebstemperatur	–20°C bis +40°C
Aufbewahrungstemperatur	–20°C bis +60°C
Gewicht	4,6 kg mit Sucher

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

Abmessungen

Einheit: mm



Sucher

Bildröhre	1,5" -Monochrom Helligkeitsregler, Kontrastregler, Signallampen/Zebramuster-Ein/Ausschalter, Konturenanhebungsschalter, AUDIO/FILTER-Schalter, Aufnahmepegelregler für Tonkanal 1
Auflösung	500 Fernsehzeilen
Mikrofon	Starke Richtwirkung

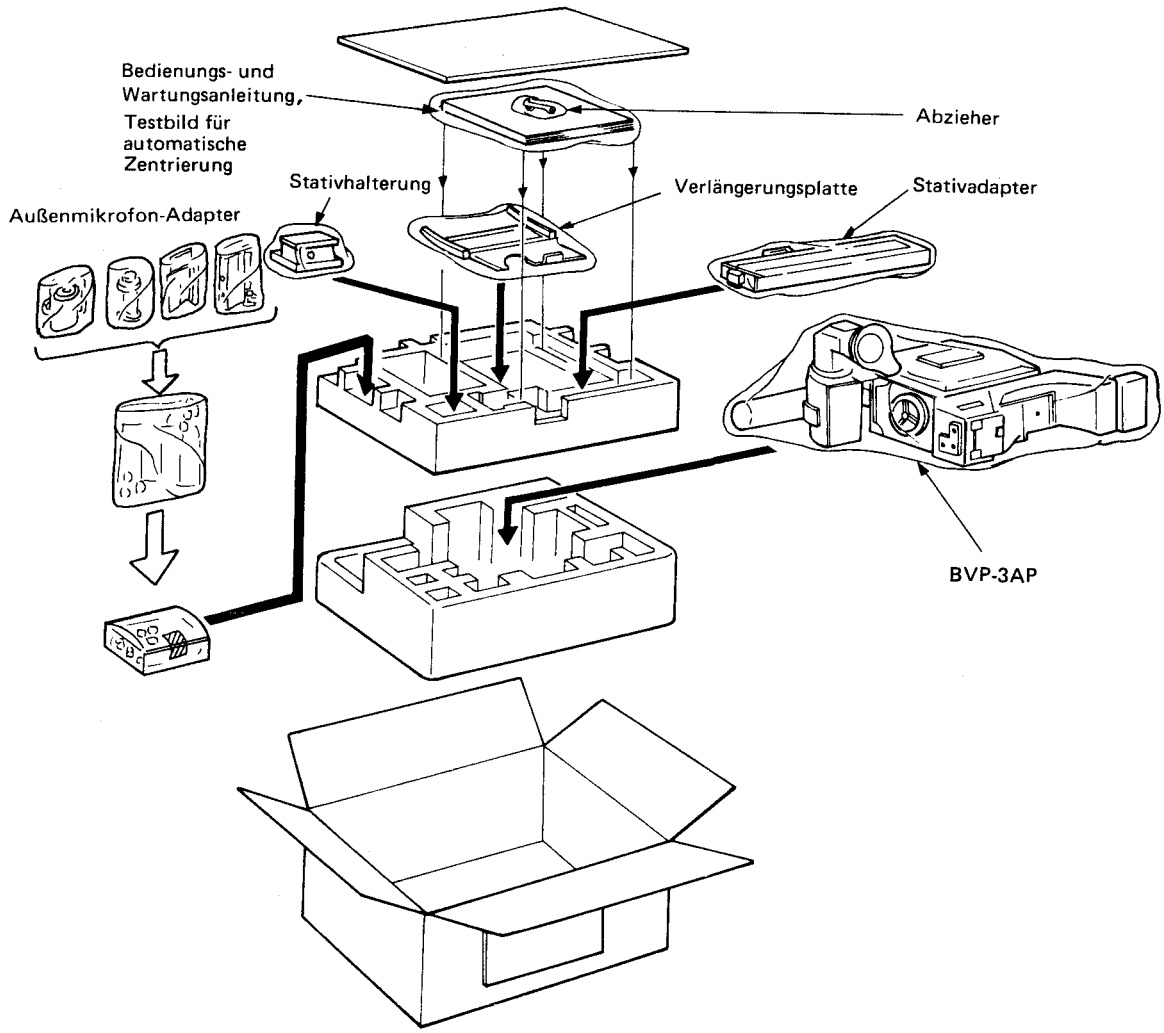
Mitgeliefertes Zubehör

Stativadapter x1
Stativhalterung x1
Verlängerungsplatte x1
Abzieher x1
Testbild für automatische Zentrierung x1
Außenmikrofon-Adapter x1

Empfohlene Geräte

Portabler Videorecorder BVV-1PS/BVV-1APS
Kameraadapter CA-3, CA-30P
Netzadapter AC-500CE
Fernbedieneinheit RM-P3
Videomonitor BVF-50

1-11. VERPACKEN DER BVP-3AP



1-12. BEDIENUNG DES BETACAM-SYSTEMS BVW-3P/BVW-3AP

1-12-1. Merkmale

Kompakt und leicht

Kamera BVP-3AP, Videorecorder BVV-1PS/BVV-1APS, Batterie und Cassette wiegen zusammen nur etwa 10 kg.

Kabelloses System

Kamera, Videorecorder, Sucher, Batterie, Mikrofon usw. werden ohne irgendwelche Kabel miteinander verbunden.

Geringe Leistungsaufnahme

Die Leistungsaufnahme ist so gering, daß eine einzige Akkubatterie NP-1 bei einem Zusammenschluß mit dem BVV-1PS/BVV-1APS einen Betrieb von ca. 30 Minuten ermöglicht.

Video- und Audio-Hinterbandkontrolle

Das Video- und Audio-Hinterbandkontrollsystem ermöglicht das Überprüfen des Aufnahmebildes und -tons.

Qualitativ hochwertiges Bild

Das neu entwickelte Aufnahmesystem mit einer 1/2-Zoll-Cassette hat die Bildqualität wesentlich verbessert und kommt nun an die des 1-Zoll-Videorecorderbildes heran. Die drei Plumbicon-Aufnahmeröhren mit der magnetischen Fokussierung und statischen Ablenkung gewährleisten eine hochwertige Bildqualität.

Eingebauter Zeitcodegenerator

Ein eingebauter Zeitcodegenerator gestattet die gleichzeitige Aufnahme des Zeitcodes während des Betriebs. Das Benutzer-Bit kann ebenfalls aufgezeichnet werden.

Unabhängige Zeitcode-Spur

Die Zeitcode-Spur ist von der Video-Spur getrennt, so daß Zeitcodeaufnahme und Löschen mit einem Schnitt-Steuergerät möglich sind.

Zwei Tonkanäle

Der Ton vom eingebauten Mikrofon oder von Außenmikrofonen bzw. von anderen Tonquellen kann auf zwei Tonkanäle getrennt aufgenommen werden.

Zusammenfügen von Einzelszenen

Dank einer speziellen Vertikalintervall-Timing-Einrichtung können einzelne Aufnahmeszenen mit störungsfreien Schnittstellen aneinandergefügt werden.

Warnsystem

Bei Betriebsstörungen leuchten Warnanzeigen auf, und ein Warnton ist sowohl über den Lautsprecher als auch über den Ohrhörer zu hören.

Anzeige für verbleibende Aufnahmezeit

Die noch verbleibende Aufnahmezeit wird im Sucher angezeigt.

Verwendung des Drahtlos-Mikrofonsystems

Ein Empfänger aus dem Sony Drahtlos-Mikrofonsystem kann angebracht werden.

Zusätzliche Akkubatterie

Zusammen mit der im Batteriefach der BVV-1PS/BVV-1APS eingesetzten Akkubatterie kann eine weitere Akkubatterie verwendet werden.

Dolby*-C Rauschverminderungssystem für bessere Tonqualität

Das in diesem Gerät verwendete neuentwickelte Dolby-C Rauschverminderungssystem liefert einen besseren Signal-Rauschabstand und einen größeren Dynamikbereich. Zum Einschalten des Dolby-Schaltkreises siehe Abschnitt 2 der BVV-1PS/BVV-1APS Bedienungsanleitung.

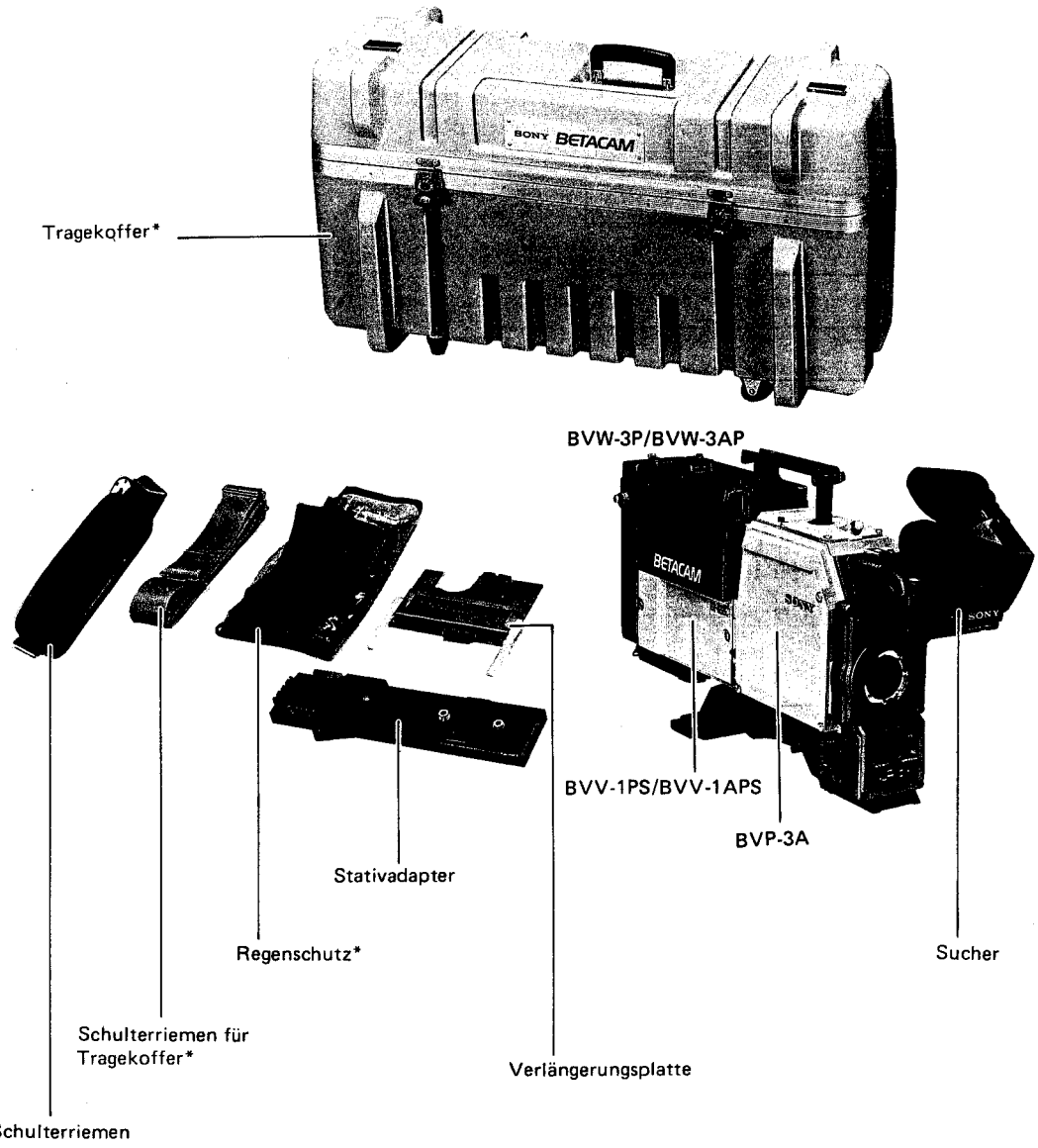
* „Dolby" und das Doppel-D-Symbol sind Warenzeichen der Dolby Laboratories Licensing Corporation. Das Dolby-Rauschverminderungssystem wird unter Lizenz der Dolby Licensing Corporation hergestellt.

Hinweis

Mit einem BVV-1PS der Serien-Nr. 49999 oder niedriger arbeiten die folgenden Funktionen der BVW-3P/BVW-3AP nicht.

- Tonpegelanzeige im Sucher.
- Aufnahmepegeleinstellung von Tonkanal 1.

1-12-2. Bestandteile des BVW-3P/BVW-3AP



Batteriefachdeckelschnur
Testbild für automatische Zentrierungseinstellung
Außenmikrofon-Adapter
Abzieher
50-Pol Kappen
Zeitcode-Anschlußkabel
6-Pol-Anschluß

* Tragekoffer, Schulterriemen für Tragekoffer und Regenschutz werden mit dem Betacam-System BVW-3P/BVW-3AP mitgeliefert. Bei getrenntem Kauf des Videorecorders BVV-1PS/BVV-1APS und der Kamera BVP-3A werden diese Teile nicht mitgeliefert. Ihre Sony Händler gibt Ihnen gerne genauere Auskünfte bezüglich dieser Teile.

1-12-3. Kontrollroutinen

Vor der Aufnahme empfehlen wir Ihnen, die folgenden Prüfungspunkte durchzugehen, um sicherzustellen, daß das Betacam-System einwandfrei funktioniert. Verwenden Sie hierbei zur Bildkontrolle einen Farbmonitor.

1. Vorbereitung

1. Setzen Sie eine voll aufgeladene Akkubatterie ein.

↓

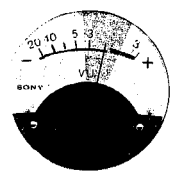
2. POWER-Schalter → ON

↓

3. Die HUMID-Lampe darf nicht leuchten.

↓

4. Überprüfen Sie die Batterie.
Stellen Sie den METER SELECT-Schalter auf BATT und überprüfen Sie, ob der Instrumentenzeiger in die grüne Zone ausschlägt.

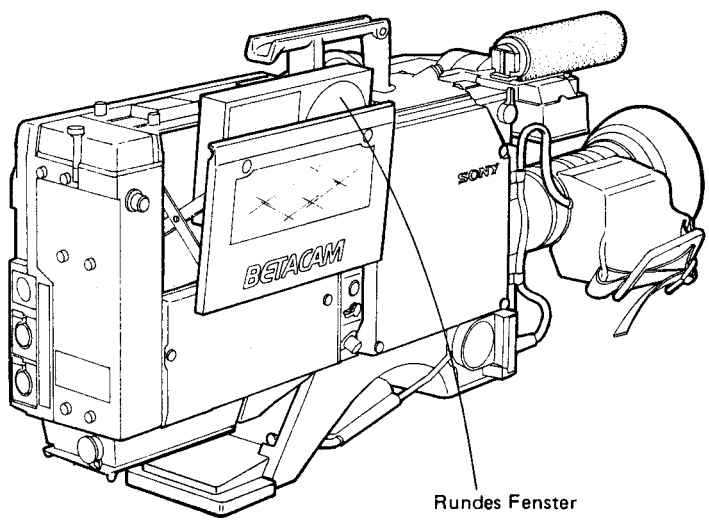


↓

5. Falls erforderlich stellen Sie Zeitcode oder Benutzer-Bit ein.

↓

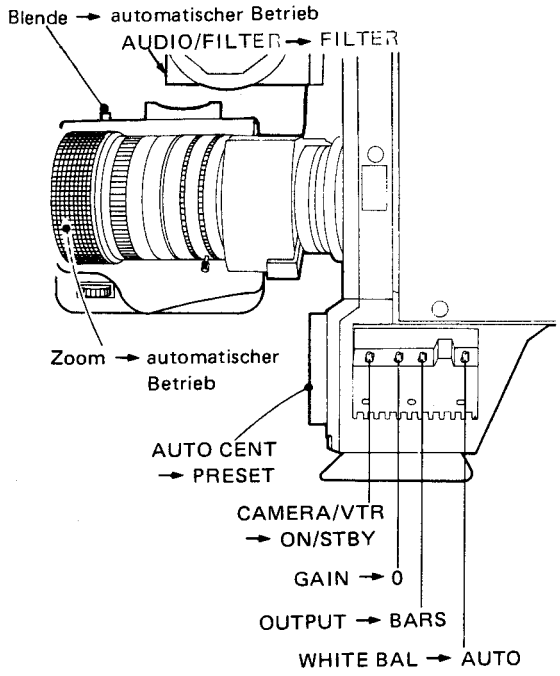
6. Setzen Sie eine Cassette ein.



- Stellen Sie sicher, daß die Löschsperre unten an der Cassette vorhanden ist.

2. Überprüfen der Kamera

1. Stellen Sie die Schalter wie unten gezeigt ein:



2. Richten Sie den Sucher aus.

3. Überprüfen Sie, ob die Farbbalken im Sucher erscheinen.

4. Stellen Sie den BRIGHT- und den CONTR-Regler am Sucher so ein, daß die Farbbalken auf dem Sucherschirm klar zu sehen sind.

5. Stellen Sie den FILTER-Wähler nacheinander auf 1→2→3→4, und überprüfen Sie, ob der richtige Wert im Sucher angezeigt wird.

6. Stellen Sie den OUTPUT-Wähler auf CAM.

7. Richten Sie die Kamera auf ein geeignetes Motiv.

8. Drehen Sie den Fokussierring so, daß das Motiv scharf ist. Überprüfen Sie, ob das Motiv auf dem Sucherschirm erscheint.

9. Überprüfen Sie den Motorzoombetrieb.
   Durch Drücken der Motorzoomtaste kann vom Weitwinkel- in den Telebereich gefahren werden und umgekehrt.

10. Stellen Sie das Zoom auf manuellen Betrieb.

11. Überprüfen Sie den manuellen Zoombetrieb. Durch Drehen des Zoomhebels kann vom Weitwinkel- in den Telebereich gefahren werden und umgekehrt.

12. Stellen Sie das Zoom auf automatischen Betrieb.

13. Richten Sie die Kamera auf Motive mit unterschiedlichen Helligkeitsniveaus und überprüfen Sie, ob die Blendenautomatik funktioniert.*

14. Stellen Sie die Blende auf manuellen Betrieb.

15. Drehen Sie den Blendenring und überprüfen Sie, ob sich die Blende ändert.

16. Drücken Sie die Sofort-Auto-Taste und halten Sie sie gedrückt, um kurz auf automatische Blendeneinstellung zu schalten. Richten Sie die Kamera auf Motive mit verschiedenen Helligkeitsniveaus, um die Einstellung zu überprüfen.

17. Stellen Sie die Blende auf automatischen Betrieb.

18. Stellen Sie den GAIN-Schalter auf 9, dann auf 18. Überprüfen Sie, ob die Blende jeweils um eine Stufe schließt und die GAIN UP-Anzeige im Sucher leuchtet.

19. Stellen Sie den GAIN-Wähler auf 0.

20. Stellen Sie den AUDIO/FILTER-Schalter auf AUDIO.
    Überprüfen Sie, daß die FILTER/AUDIO-Anzeige den Tonpegel anzeigt.

* Bei Verwendung eines Objektivs mit 6-poligem Anschluß können Regelschwingungen auftreten. Stellen Sie in diesem Fall den AUTO IRIS GAIN-Regler am Objektiv ein. (Genauere Informationen finden Sie in der Bedienungsanleitung des Objektivs.)

3. Überprüfen des Videorecorders

Führen Sie die Schritte 3-1. bis 3-5. der Reihe nach durch.

3-1. Überprüfen des Bandtransports

1. Stellen Sie den TAPE TIMER/TIME CODE-Schalter auf TAPE TIMER.

2. Drücken Sie die VTR START-Taste.
   Überprüfen Sie, ob
   - das Band läuft
   - sich die Zahlen der Anzeige mit dem Bandlauf ändern
   - die REC-Lampe im Sucher leuchtet
   - die RF- und SERVO-Lampe nicht leuchten

3. Drücken Sie die VTR START-Taste erneut.
   Überprüfen Sie, ob das Band stoppt und die REC-Lampe im Sucher ausgeht.

4. Drücken Sie die VTR-Taste des Objektivs.
   Überprüfen Sie, ob
   - das Band läuft
   - sich die Zahlen der Anzeige mit dem Bandlauf ändern
   - die REC-Lampe im Sucher leuchtet
   - die RF- und SERVO-Lampe nicht leuchten

5. Drücken Sie die VTR-Taste erneut.
   Überprüfen Sie, ob das Band stoppt und die REC-Lampe im Sucher ausgeht.

6. Drücken Sie die RESET-Taste.
   Überprüfen Sie, ob die Anzeige „00 00 00" erscheint.

7. Drücken Sie die LIGHT-Taste
   Die Anzeige ist beleuchtet.

3-2. Überprüfen der automatischen Einstellung des Aufnahmepegels

1. Stellen Sie den METER SELECT-Schalter auf AUDIO.

2. Stellen Sie den AUDIO CH-1, CH-2, AUTO/MANU-Schalter auf AUTO.

3. Stellen Sie die AUDIO IN CH-1/CH-2-Schalter auf CAM.

4. Richten Sie das Mikrofon auf eine Tonquelle.

5. Stellen Sie den CH SELECT-Schalter auf CH-1.
   Überprüfen Sie, ob der Zeiger des Meßinstruments gemäß der Lautstärke ausschlägt.

6. Stellen Sie den CH SELECT-Schalter auf CH-2.
   Überprüfen Sie, ob der Zeiger des Meßinstruments gemäß der Lautstärke ausschlägt.

3-3. Überprüfen der manuellen Einstellung des Aufnahmepegels

1. Stellen Sie den AUDIO CH-1, CH-2, AUTO/MANU-Schalter auf MANU.
2. Drehen Sie den AUDIO LEVEL CH-2-Regler im Uhrzeigersinn.
   Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.
3. Stellen Sie den CH SELECT-Schalter auf CH-1.
4. Drehen Sie den AUDIO LEVEL CH-1-Regler im Uhrzeigersinn.
   Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.
5. Drehen Sie den AUDIO CH-1-Regler der Kamera.
   Überprüfen Sie, daß die Pegelmeter ausschlagen.
6. Stellen Sie den AUDIO-Schalter auf AUTO.

3-4. Überprüfen von Ohrhörer und Lautsprecher

1. Drehen Sie die VOLUME-Regler des Videorecorders und der Kamera nach rechts.
   Überprüfen Sie, ob sich die entsprechende Lautsprecher-Lautstärke ändert.
2. Schließen Sie einen Ohrhörer an die EARPHONE-Buchse an.
   Überprüfen Sie, ob der Lautsprecher abgeschaltet wird und die Wiedergabe über Ohrhörer erfolgt.
3. Drehen Sie am VOLUME-Regler.
   Überprüfen Sie, ob sich die Ohrhörer-Lautstärke ändert.

3-5. Überprüfen der Ton-Hinterbandkontroll-Funktion

1. Stellen Sie den AUDIO IN CH-1-Schalter auf CAM und den AUDIO IN CH-2-Schalter auf LINE.
2. Drücken Sie die VTR-Taste.
3. Überprüfen Sie, ob der Ton vom Mikrofon zu hören ist.
4. Stellen Sie den AUDIO IN CH-1-Schalter auf LINE und den AUDIO IN CH-2-Schalter auf CAM.
5. Überprüfen Sie, ob der Ton vom Mikrofon zu hören ist.

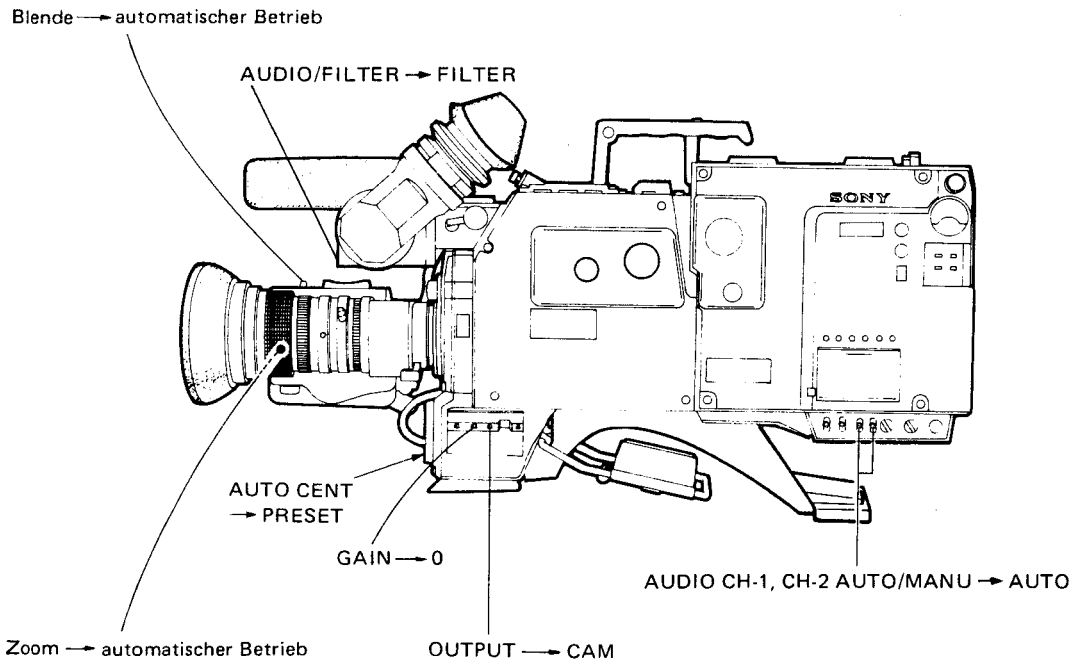
3-6. Überprüfen der Außenmikrofone

1. Schließen Sie die Mikrofone an die AUDIO IN CH-1/CH-2-Anschlüsse an.
2. Stellen Sie die AUDIO IN CH-1/CH-2-Schalter auf MIC.
3. Stellen Sie den AUDIO-Schalter auf AUTO.
4. Richten Sie die Außenmikrofone auf eine Tonquelle.
5. Stellen Sie den CH SELECT-Schalter auf CH-1.
   Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.
6. Stellen Sie den CH SELECT-Schalter auf CH-2.
   Überprüfen Sie, ob der Zeiger des Meßinstruments ausschlägt.

1-12-4. Bedienung

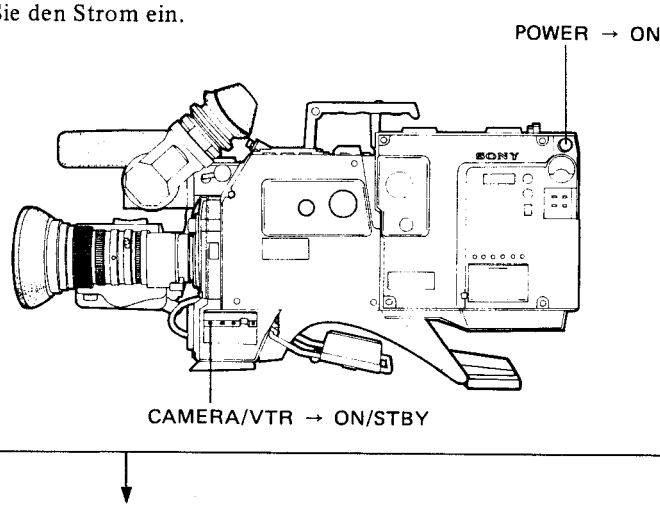
1. Vorbereitung

Überprüfen Sie vor Inbetriebnahme, daß die Schalter wie unten gezeigt eingestellt sind.



2. Aufnahme

1. Schalten Sie den Strom ein.



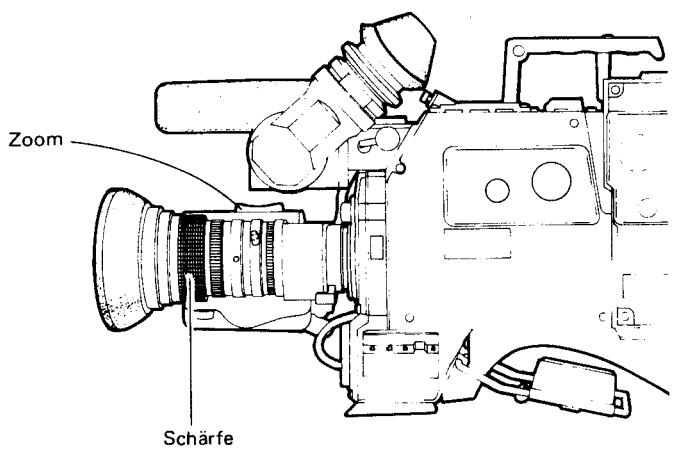
2. Setzen Sie eine Cassette ein.

3. Wählen Sie einen den Lichtverhältnissen entsprechenden Filter.

4. Stellen Sie den Weiß- und Schwarzabgleichwert ein.
Wenn der Weiß- und Schwarzabgleichwert gespeichert ist,
stellen Sie den WHITE BAL-Schalter auf AUTO.
Wenn der Weiß- und Schwarzabgleichwert nicht gespeichert ist, Sie jedoch schnell mit der Aufnahme beginnen wollen,
stellen Sie den WHITE BAL-Schalter auf PRESET und den AUTO W/B BAL-Schalter auf BLK. Sie erhalten dann einen Weiß- und Schwarzabgleich für 3200°K.
Durchführung des Weiß- und Schwarzabgleichs
   1. Stellen Sie den WHITE BAL-Schalter auf AUTO.
   2. Zoomen Sie auf den weißen Gegenstand.
   3. Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Sobald die W/B CENT-Anzeige aufleuchtet, ist der Schwarzabgleich durchgeführt.
   4. Stellen Sie den AUTO W/B BAL-Schalter auf WHT, und prüfen Sie, ob die W/B CENT-Anzeige aufleuchtet.

- Genauere Angaben zum Weiß- und Schwarzabgleich finden Sie im Abschnitt „1-6. Einstellungen".

5. Richten Sie die Kamera auf das Motiv und stellen Sie Schärfe und Zoom ein.



SECTION 2
TECHNICAL INFORMATION

2-1. CIRCUIT BOARD DESCRIPTION

PA-37 board

It contains a set of preamplifiers which amplify the small signals from a set of pick-up tubes so as to process them in the succeeding stages. The front end of each preamplifier is located around the target of the respective pick-up tube so as to minimize degradation of performance due to stray capacitances.

It is also used to add the TEST SAW signal to the main channel signal.

VA-14 board

It receives the signals from the PA-37 board. Black-shading correction, amplification of 0 dB, 9 dB, or 18 dB, white-shading correction, and white balancing are performed on the VA-14 board.

It also contains the ABO circuit to optimize the beam of each pick-up tube in terms of incident light.

The G-channel signal, among the B-, G-, and R-channel signals from the VA-14 board, is applied to the IE-6 board, and the remaining B- and R-channel signals to the PR-75 board. It also contains the control to widen the dynamic range for AUTO KNEE (D.C.C.) corection.

IE-6P board

It generates the horizontal and vertical detail-signals out of the G-channel signal. The respective detail signal enhances the contour of an image and apparently improves resolution.

It also contains the horizontal and vertical GATE-PULSE generator for use in automatic centering, and the VF video output circuit.

PR-75 board

It contains the video signal processing circuits. The signal processing circuit mixes the detail-signal and masking signal with the B-, G-, and R-channel signals. It then performs flare correction to compensate for floating of the black level due to differences in the characteristics of the respective pick-up tubes, white clipping so as to clip the signals of greater than the threshold level in order to prevent the VTR against overmodulation, knee-point setting accomplished to apparently assure a dynamic range to some extent in white levels, and gamma-correction to compensate for the γ-characteristics of the CRT.

The knee point has two functions both the manual knee point (as ever usual) and auto knee point (new system). They are selected by switch in the PR-75 board. The auto knee point is called by D.C.C. (=Dynamic Contrast Control).

In addition, it also contains the NAM-Y signal output circuit for driving the automatic iris control, ABL signal generator for use in automatic black level adjustment, and B-, G-, and R-channel output circuits used for adjusting the camera.

EN-33A board

It contains the Y-signal, composite video signal, R—Y signal, and B—Y signal generators which can be operated by the B-, G-, and R-channel signals from the PR-75 board.

It also contains the color-bar signal generator.

One can select either the camera signal or the color-bar signal in accordance with the selector position.

DF-17 board

It contains a pair of deflection circuits for the respective pick-up tubes, where sawtooth wave signals necessary for beam deflection can be generated. The sawtooth wave signals are applied to the deflection electrodes of the respective pick-up tubes.

For use with the 3-tube camera, it contains the registration setting waveform generator for use in registration adjustment.

SH-8A board

It generates the shading correction signals when the sawtooth wave signals are fed from the DF-17 board. These correction signals are used to compensate for shading occurring in the lens system and pick-up tubes.

AT-16 board

It automatically accomplishes centering, white balancing, and black balancing for the camera, using a microcomputer. When the CCU is connected to the camera, it performs interfacing with the CCU so as to send the control signals from the CCU to the related circuit within the camera.

It also contains the driver for automatic iris control.

SG-63A board

It contains the synchronizing signal generator and GENLOCK circuit for sysnchronizing with the external sync.

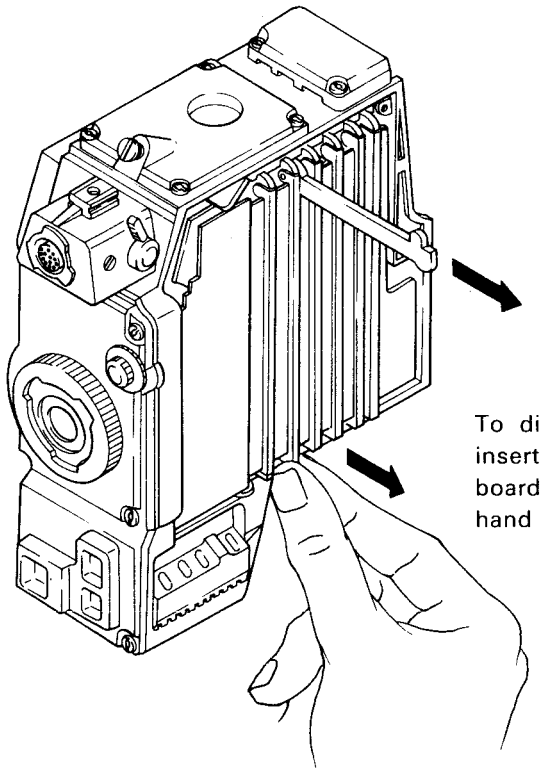
PW-93 board

It contains the switching voltage regulator, series voltage regulator, and DC-DC voltage converter.

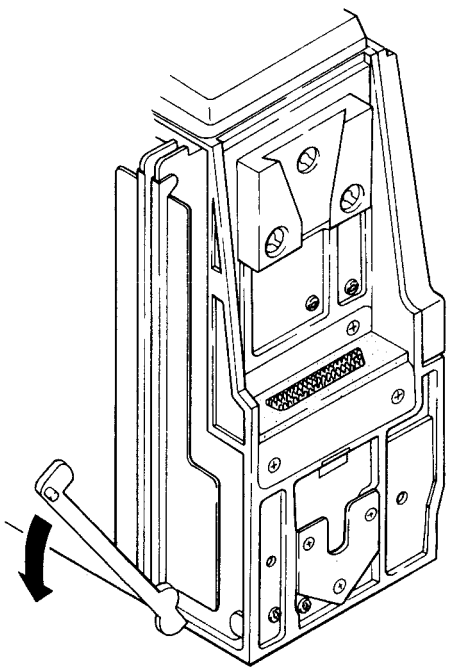
DC voltages are generated when a voltage of 12 volts DC is applied to the camera as power.

It also contains the electro-magnetic focusing current regulator for each pick-up tube.

2-2. CIRCUIT BOARD REMOVAL

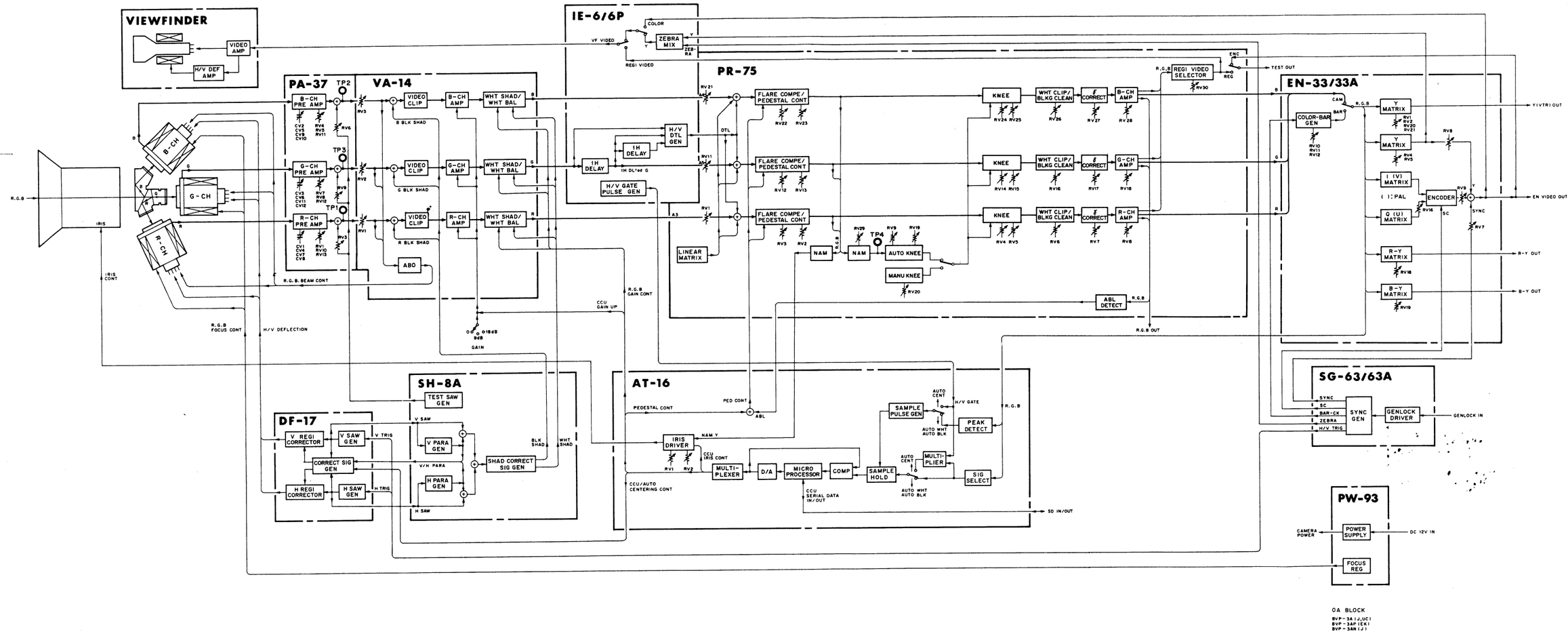


To disconnect the five boards, from VA to EN, insert the pin of the extractor into the hole of the board and pull them toward you with your another hand on the bottom of the board.



Hook the pin of the extractor on the bottom hole of the PW board and remove it in the direction indicated by the arrow, with the cabinet as a fulcrum.

2-3. OVERALL BLOCK DIAGRAM



2-4. VIDEO LEVEL CHECK SHEET

1. Preparations

S1	WHT CLIP	→ OFF	/PR-75 board
S3	R.γ	→ OFF	
S4	G.γ	→ OFF	
S5	B.γ	→ OFF	
S8	REG/ENC	→ ENC	
S7	G/−G	→ G	
S6	R/B	→ OFF	

Use the object at 3200°K.

2. Adjustments

① Adjust the iris control so that the video level at B9/VA-14 board is 0.4 ± 0.01Vp-p.

② Adjust the ◐RV2 G.GAIN /VA-14 board so that the video level at A5/PR-75 board is 0.5 ± 0.01Vp-p.

③ Adjust the ◐RV1 R.GAIN /VA-14 board so that the video level at A3/PR-75 board is 0.5 ± 0.01Vp-p.

④ Adjust the ◐RV3 B.GAIN /VA-14 board so that the video level at A4/PR-75 board is 0.5 ± 0.01Vp-p.

⑤ S1 TEST /SH-8A board → ON

⑥ Adjust the ◐RV9 TEST /PA-37 board so that the video level at A5/PR-75 board is 0.5 ± 0.01Vp-p.

⑦ Adjust the ◐RV3 TEST /PA-37 board so that the video level at A3/PR-75 board is 0.5 ± 0.01Vp-p.

⑧ Adjust the ◐RV6 TEST /PA-37 board so that the video level at A4/PR-75 board is 0.5 ± 0.01Vp-p.

⑨ Adjust the ◐RV11 (G.γ BAL)/PR-75 board for such a position that the white peak level at B9/PR-75 board does not change while setting S4 G.γ /PR-75 board at ON or OFF.

⑩ Adjust the ◐RV1 (R.γ BAL)/PR-75 board for such a position that the white peak level at B8/PR-75 board does not change while setting S3 R.γ /PR-75 board at ON or OFF.

⑪ Adjust the ◐RV21 (B.γ BAL)/PR-75 board for such a position that the white peak level at B11/PR-75 board does not change while setting S5 B.γ /PR-75 board at ON or OFF.

⑫ S4 G.γ, S3 R.γ, and S5 B.γ /PR-75 board → ON

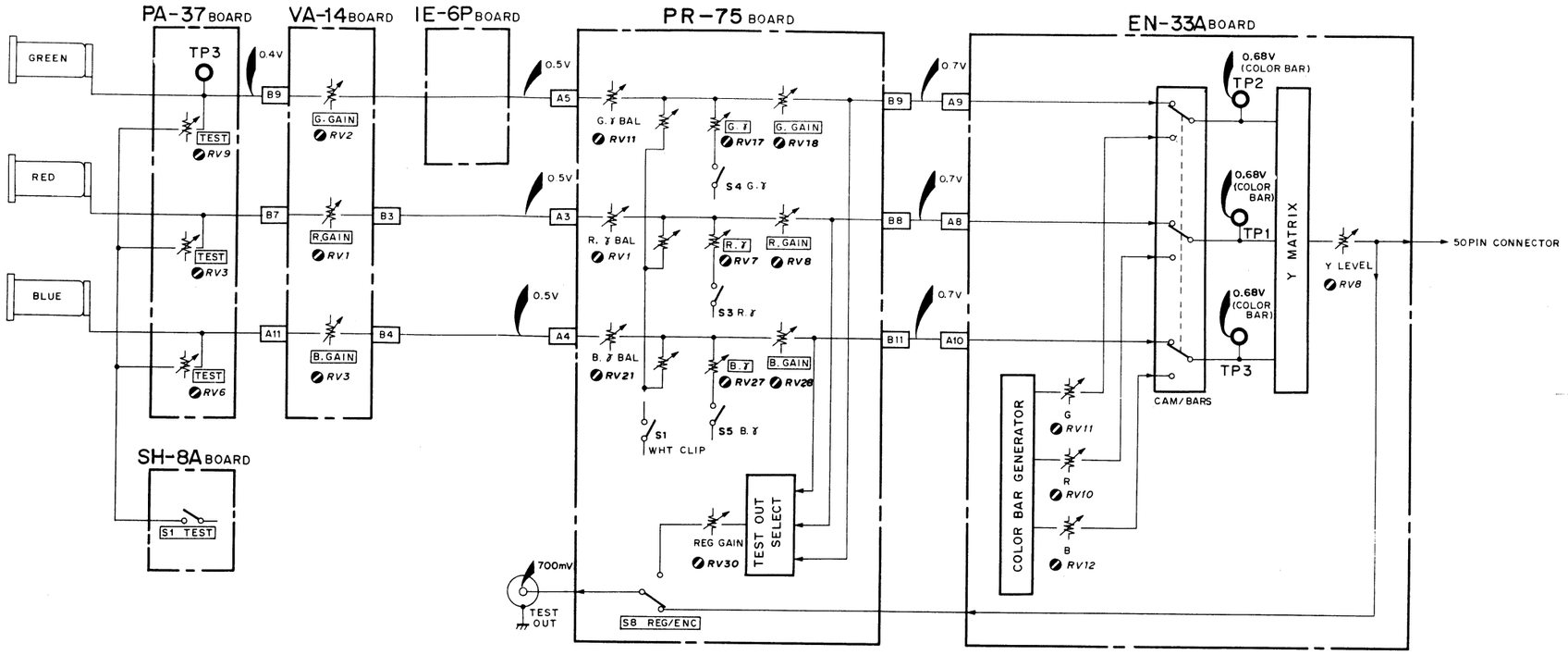
⑬ Adjust the ◐RV18 G.GAIN /PR-75 board so that the video level at B9/PR-75 board is 0.7 ± 0.01Vp-p.

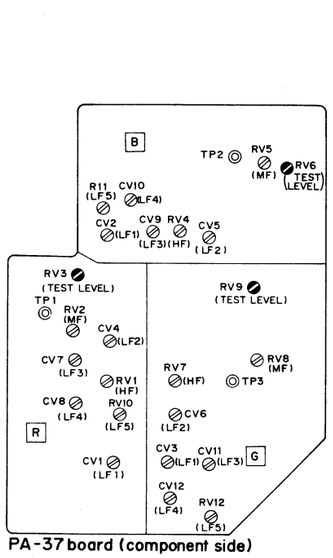
⑭ Adjust both ◐RV8 R.GAIN and ◐RV28 B.GAIN /PR-75 board so that the carrier leakage at the TEST OUT terminal is minimized.

⑮ Adjust the ◐RV8 (Y.LEVEL)/EN-33A board so that the video level at the TEST OUT terminal is 700 ± 14 mV.

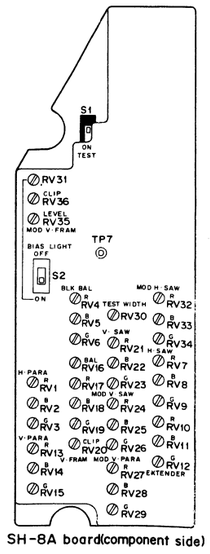
⑯ S8 REG/ENC /PR-75 board → REG

⑰ Adjust the ◐RV30/(REG GAIN)/PR-75 board so that the video level at the TEST OUT terminal is 700 ± 14 mV.

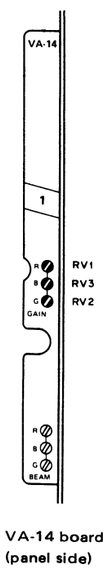




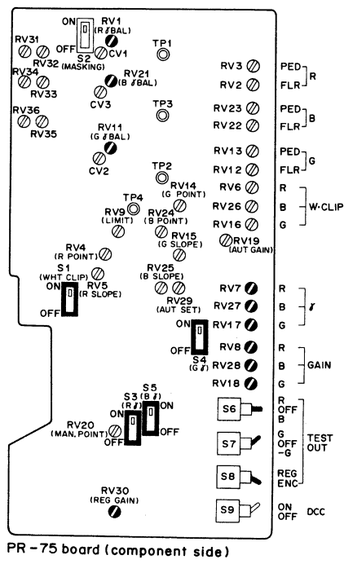
PA-37 board (component side)



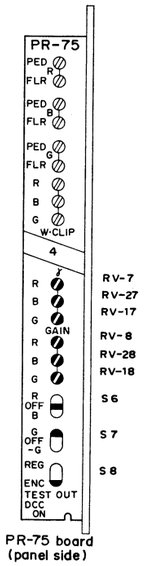
SH-8A board(component side)



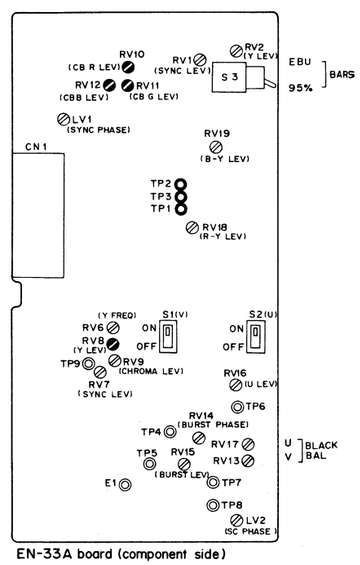
VA-14 board (panel side)



PR-75 board (component side)



PR-75 board (panel side)



EN-33A board (component side)

2-5. FUNCTION OF CONTROLS

VA-14

GAIN (R, G, B)
Adjusts so that R, G and B signals are equalized in level.

BEAM (R, G, B)
Adjusts the beam amount.

SH-8A

TEST
Turns on or off the test signal.

TEST WIDTH
Adjusts the pulsewidth of the test signal.

BIAS LIGHT
Turns on or off the bias light signal. When turned on, the brightness of the bias light can be changed using VR. When the iris is set at CLOSE, adjusts so that the output level of a pre-amplifier is 10 mV.

EXTENDER (R, G, B)
Adjusts using a lens with extender so that the color shading is minimized when an extender is used.

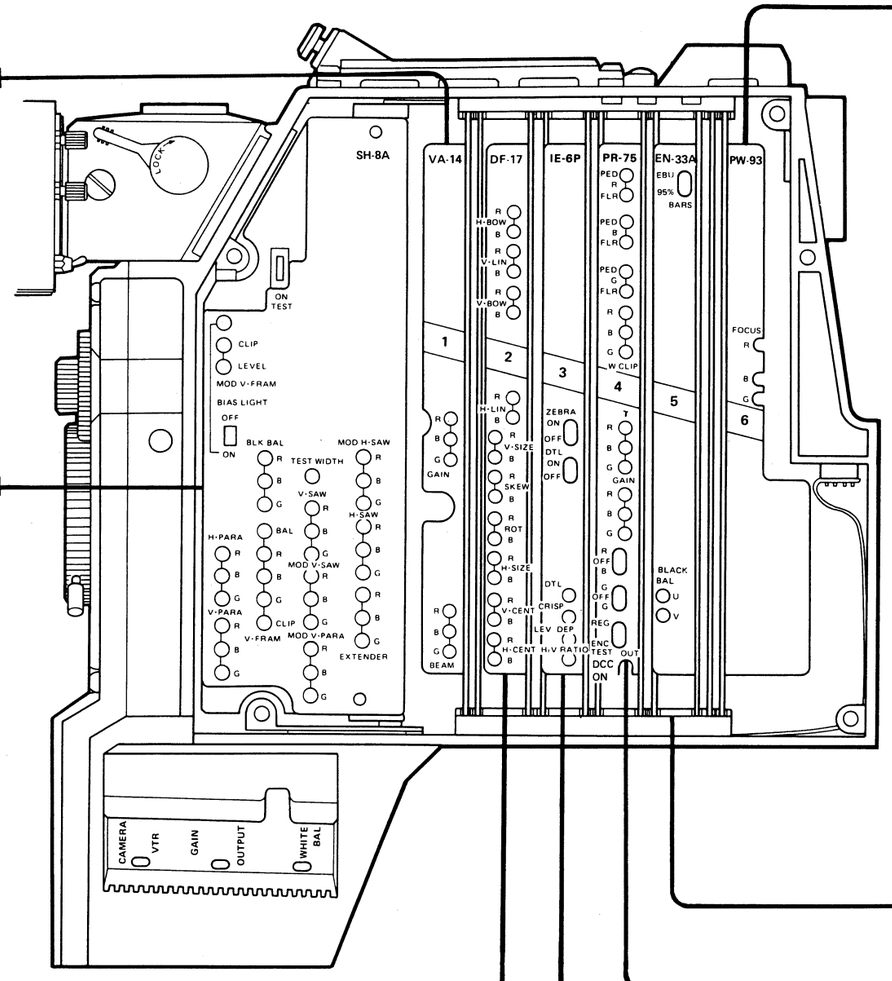
BLK BAL (R, G, B)
Adjusts so that no pedestal level changes when the gain switch is set at +9 dB or +18 dB.

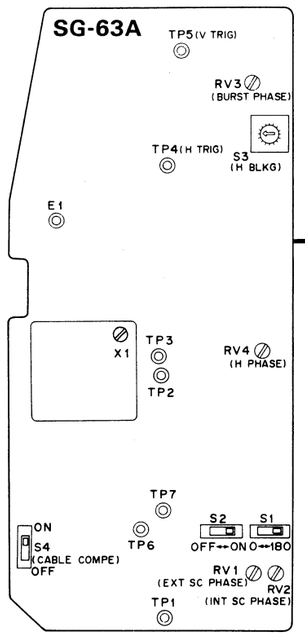
H.PARA, **H.SAW**
V.PARA, **V.SAW**
Compensates the black level shading when the iris is set at CLOSE.

MOD H.SAW, **MOD V.SAW**
MOD V.PARA
Compensates the white level shading on the entire white pattern.

MOD V.FRAM (LEVEL, CLIP)
Reduces the vertical framing on the entire white pattern.

V.FRAM (BAL, R, G, B, CLIP)
Reduces the vertical framing when the iris is set at CLOSE.





PW-93

FOCUS (R, G, B)
Adjusts so that the amplitude in level of 5 MHz and 6 MHz on the multi-burst chart is maximized.

SG-63A (Rear side of camera)

H BLK WIDTH S3
Increases/decreases the horizontal blanking width by 70 nsec.

H PHASE RV7
Adjusts the phase of the camera video signal in the external synchronous mode.

EXT SC PHASE S1
Inverts the subcarrier phase of the camera video signal by 180° in the external synchronous mode.

EXT SC PHASE RV1
Adjusts the subcarrier phase of the output signal in the external synchronous mode.

INT SC PHASE RV2
Adjusts the subcarrier phase of the output signal in the internal synchronous mode. (Be sure not to turn RV2 except when adjustment is out of condition.)

CF S2
Turns on or off the color framing pulse.

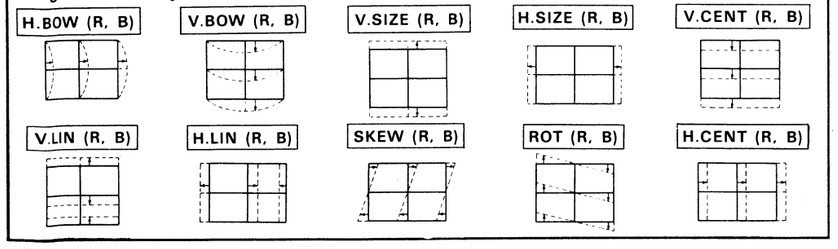
CABLE COMPE S5
In the external synchronous mode, turns off the GEN LOCK signal forn a connection cable under 150m and turns on the signal for one exceeding 150m.

EN-33A

BARS (EBU/95%)
Switches the color bar signal to the EBU specification or to "95%".

BLACK BAL (U, V)
Performs the black balance (carrier balance) adjustment of the composite video signal.

DF-17
Registration adjustment



IE-6P

ZEBRA (ON/OFF)
Change over the zebra signal to ON or OFF. If the ZEBRA (ON/OFF) switch is being set to OFF, it inhibits switch ON or OFF from the viewfinder.

DTL (ON/OFF)
Changes over the detail signal to ON or OFF.

DTL
Adjusts the detail amount.

CRISP
Reduces the low-amplitude noise component in the detail signal.

LEV DEP
Sets so that the detail signal is not superimposed near the black level of a signal.

H/V RATIO
Adjusts the balance of the H and V of the detail signals.

PR-75

PED (R, G, B)
Adjusts the pedestal level of R, G and B signals. (Set at 20 mV.)

FLR (R, G, B)
Compensates the dispersion of the video signal due to the flare of R, G and B signals.

W.CLIP (R, G, B)
Sets the white clip level of R, G and B signals.

DCC (ON)
Change over the manual knee or the auto knee.
This switch selects the manual knee and auto knee, when this switch set to ON, the machine functions as auto knee and knee point goes low.

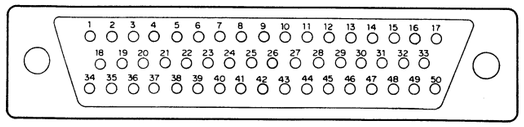
γ (R, G, B)
When a 11-step grayscale chart is shot so that the white level is 700 mV, sets the cross point of the waveform at 400 mV. Adjusts so that R, G and B signals are same in level.

GAIN (R, G, B)
Adjusts the video level of R, G and B signals.

TEST OUT (R/B, G/-G, REG/ENC)
Selects the signals necessary for registration adjustment.

2-6. CONNECTOR'S PIN FUNCTION

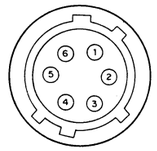
50PIN CONNECTOR



PIN NO.	SIGNAL	SPECIFICATION
1	GEN LOCK IN	VBS OR BS input for GEN LOCK Zi = 1 kΩ 1 Vp-p
2	GEN LOCK(GND)	
3	+9V OUT	+9V output
4	–9V OUT	–9V output
5	UNREG(GND)	GND for +12V input
6	UNREG(GND)	
7	RED VIDEO OUT	Red signal output Zo = 75Ω 0.7 Vp-p (No SYNC signal provided)
8	GRN VIDEO OUT	Green signal output Zo = 75Ω 0.7 Vp-p (No SYNC signal provided)
9	BLU VIDEO OUT	Blue signal output Zo = 75Ω 0.7 Vp-p (No SYNC signal provided)
10	RGB(GND)	GND for RGB signal
11	NC	Non connection
12	NC	
13	NC	
14	SD IN/OUT	Input/output of serial data for camera control
15	MIC(GND)	Microphone audio output Zo ≧ 600Ω –60 dBm balanced
16	MIC(X) OUT	
17	MIC(Y) OUT	
18	RET VIDEO IN	Return video input
19	RET VIDEO(GND)	
20	NC	Non connection
21	NC	
22	TAPE IND 1 IN	Tape remaining indicator signal input
23	TAPE IND 2 IN	
24	REC ALARM IN	Rec/tally signal input Zi = 20kΩ
25	BATT IND IN	Residual battery alarm signal input Zi = 300Ω
26	PB REF IN	VF video selecting signal input Zi = 100kΩ
27	VTR START/STOP OUT	VTR start/stop signal output
28	NC	Non connection
29	R–Y OUT	R–Y color difference signal output Zo = 75Ω 0.7 Vp-p
30	R–Y(GND)	
31	NC	Non connection
32	VTR SAVE OUT	VTR save signal output SAVE: 4.5V STBY: 0V OR OPEN
33	AUDIO MONITOR IN	Audio signal input
34	SYNC OUT	SYNC pulse output ⎍ 5 Vp-p
35	NC	Non connection
36	SHUT CLOSE IN	Shutter control signal input VTR REW: 4.5V
37	CF OUT	Color framing pulse output ⎍

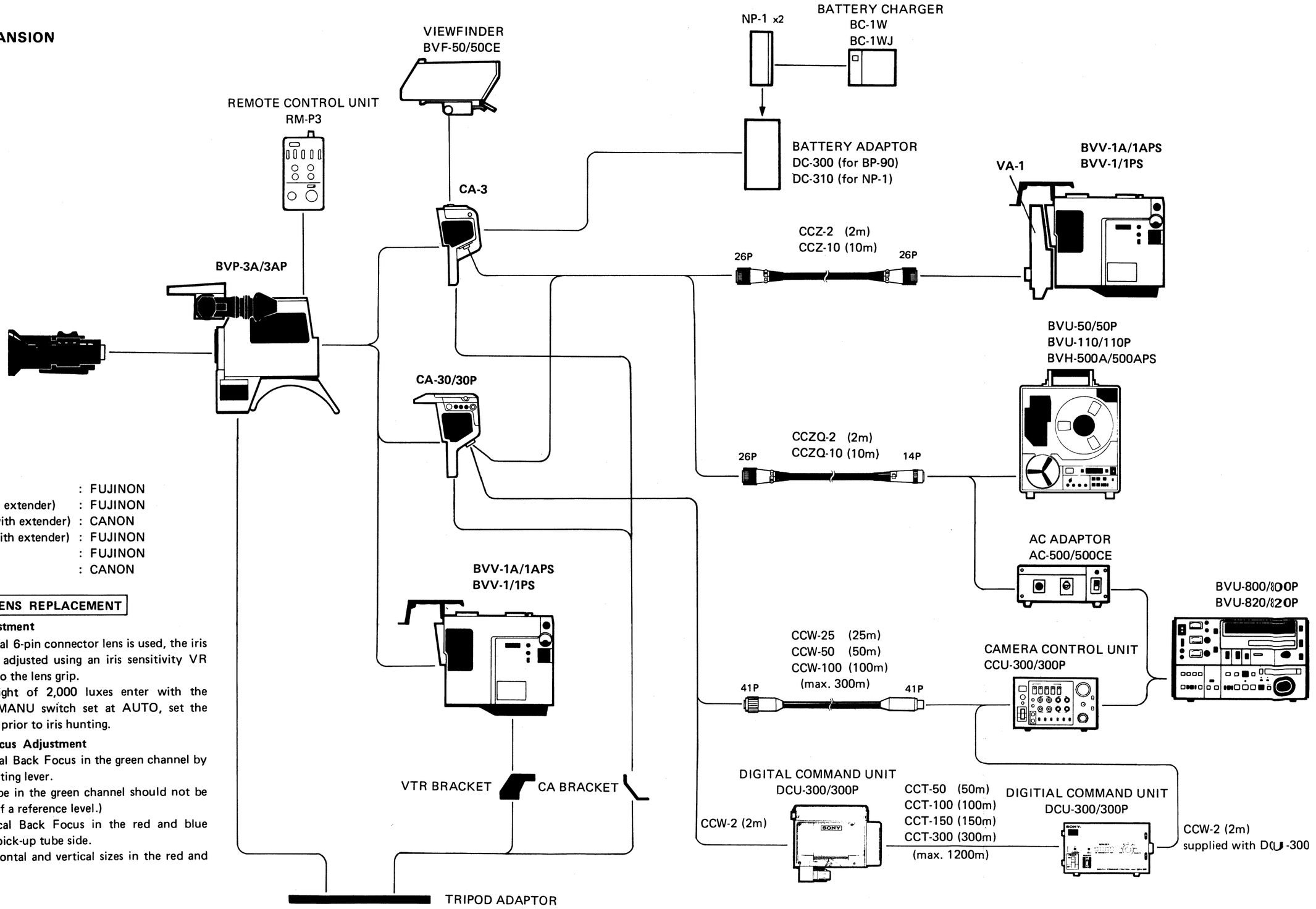
PIN NO.	SIGNAL	SPECIFICATION
38	RET VIDEO CONT OUT	VF video selecting signal output PB: 0V
39	UNREG IN	Power supply input +12V
40	UNREG IN	
41	Y(VTR) OUT	Luminance signal output Zo = 75Ω 1 Vp-p SYNC negative
42	Y(VTR) (GND)	
43	EN VIDEO(VTR) OUT	Composite video signal output Zo = 75Ω 1 Vp-p SYNC negative
44	EN VIDEO(VTR) (GND)	
45	NC	Non connection
46	NC	
47	NC	
48	NC	
49	B–Y OUT	B–Y color difference signal output Zo = 75Ω 0.7 Vp-p
50	B–Y(GND)	

REMOTE CONNECTOR (6PIN)



PIN NO	SIGNAL	SPECIFICATION
1	NC	Non connection
2	SD IN/OUT	Input/output of serial data for camera control
3	UNREG(GND)	GND for +12V input
4	GND	Signal grounding
5	EN VIDEO(VTR) OUT	Composite video signal output Zo = 75Ω 1 Vp-p SYNC negative
6	UNREG OUT	Power supply output +12V

2-7. SYSTEM EXPANSION



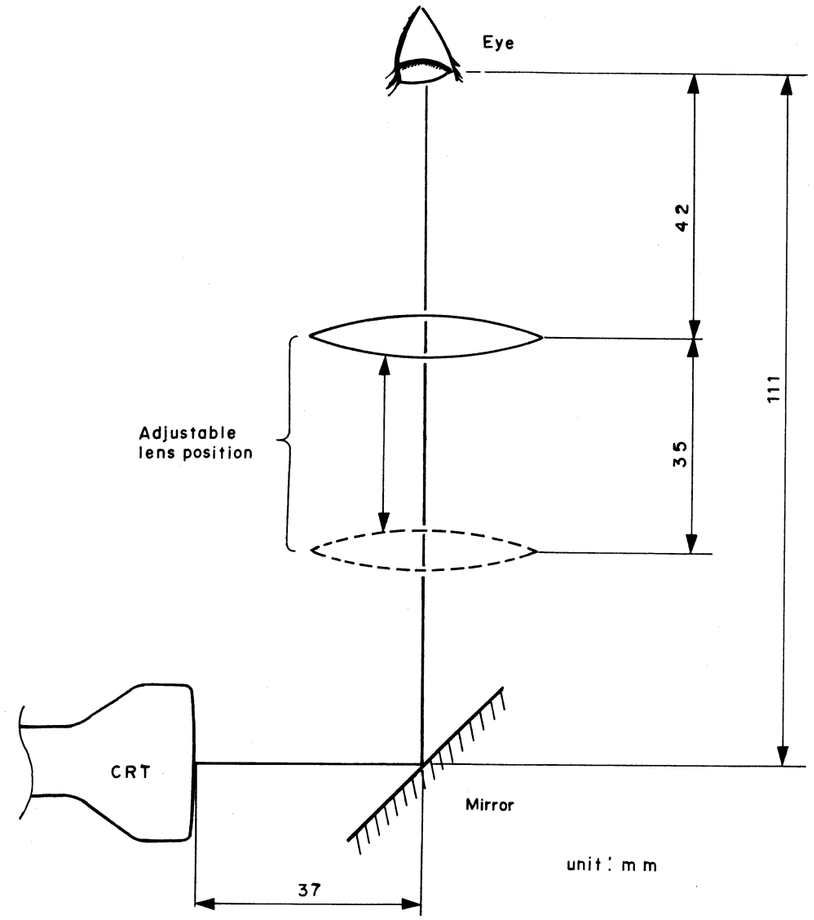
ZOOM LENS

7x	A7x7B RM28	: FUJINON
12x	A12x9B ERM (with extender)	: FUJINON
13x	J13x9B4 IRS-2B (with extender)	: CANON
14x	A14x9B ERM28 (with extender)	: FUJINON
14x	A14x10B RM28	: FUJINON
15x	J15x9.5B4 KRS-B	: CANON

ADJUSTMENT FOR LENS REPLACEMENT

1. **Iris Sensitivity Adjustment**
   When the conventional 6-pin connector lens is used, the iris sensitivity should be adjusted using an iris sensitivity VR or gain VR attached to the lens grip.
   Adjustment: When light of 2,000 luxes enter with the AUTO/MANU switch set at AUTO, set the VR just prior to iris hunting.
2. **Mechanical Back Focus Adjustment**
   1) Adjust Mechanical Back Focus in the green channel by using a lens adjusting lever.
      (The pick-up tube in the green channel should not be shifted because of a reference level.)
   2) Adjust Mechanical Back Focus in the red and blue channels on the pick-up tube side.
   3) Adjust the horizontal and vertical sizes in the red and blue channels.

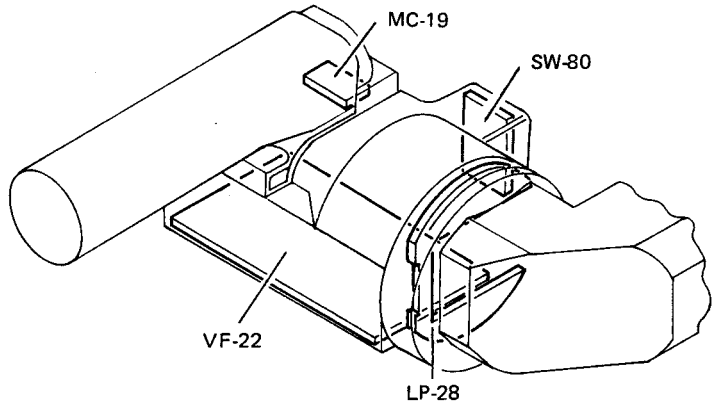
2-8. DIOPTRIC RANGE OF VIEWFINDER

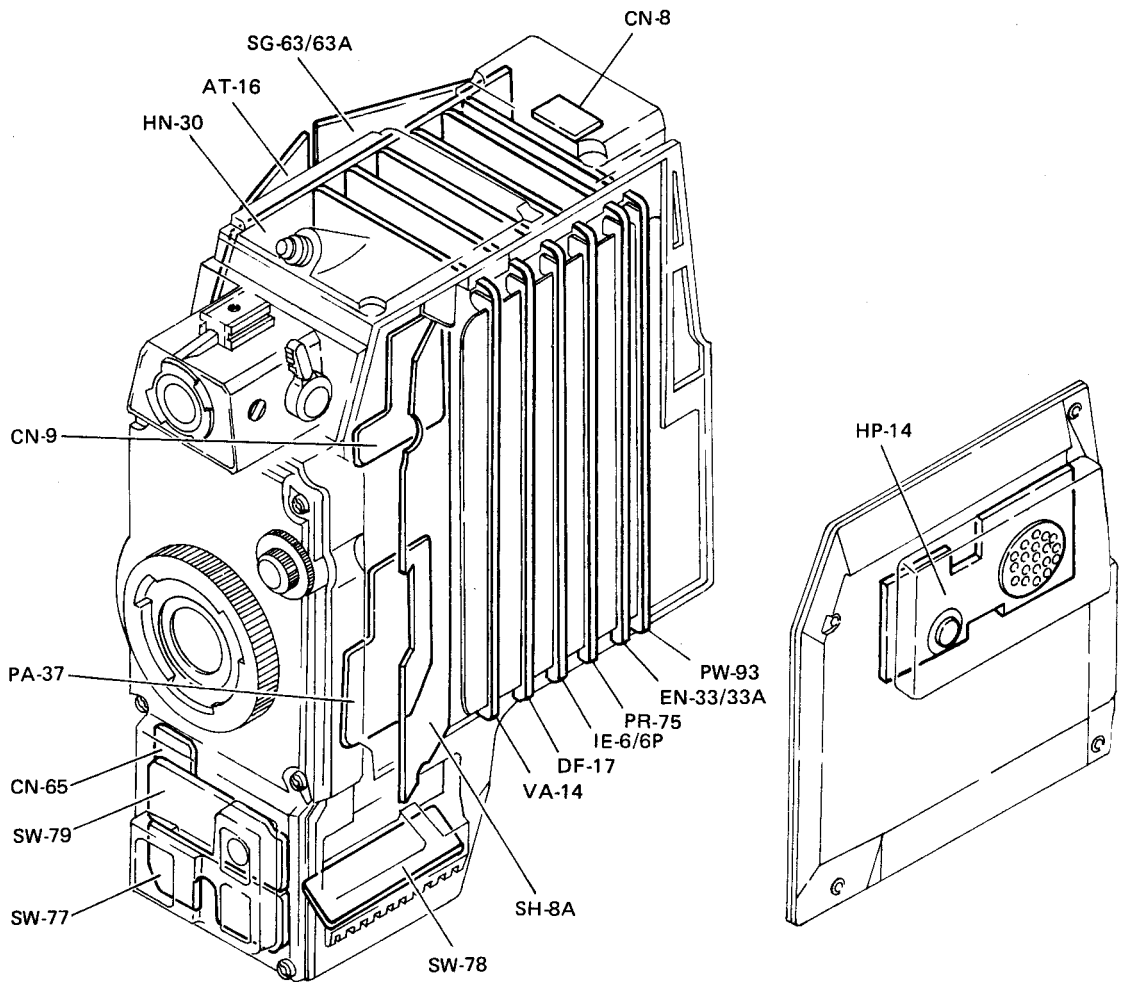


Diopter: −1.5 ~ −4.5 (Adjustable)

SECTION 3
SERVICE INFORMATION

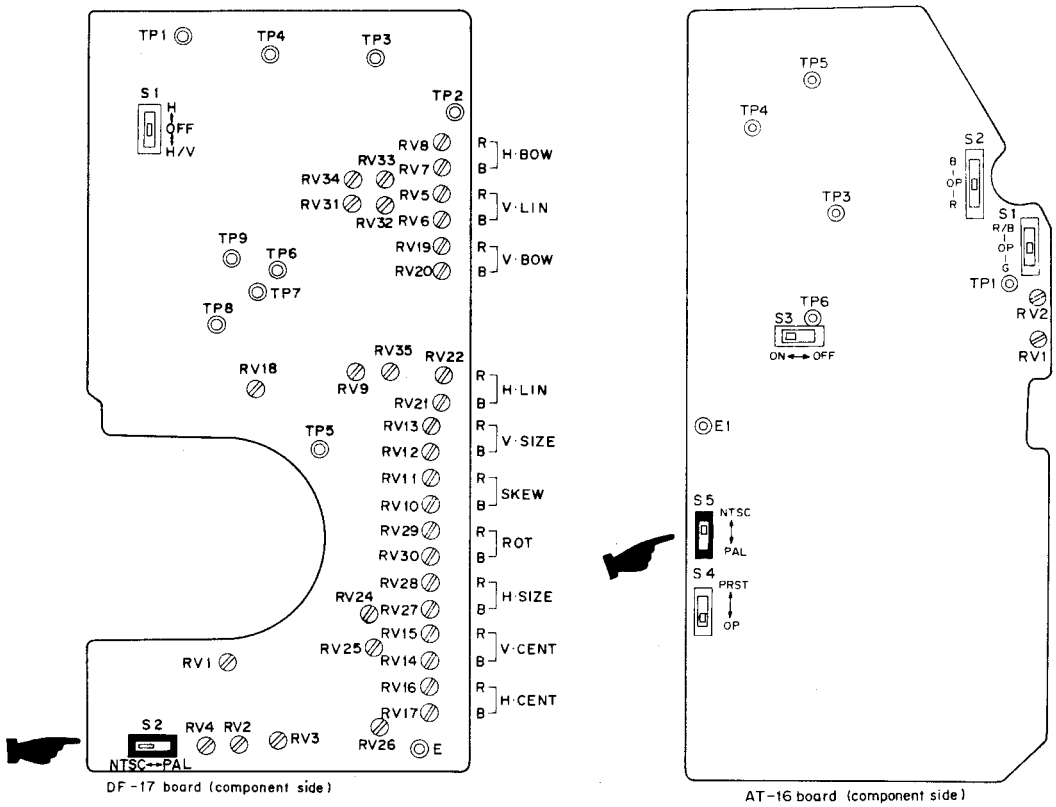
3-1. BOARD ARRANGEMENT





3-2. NOTES ON BOARD REPLACEMENT

The DF-17 board and AT-16 board can be used in common for NTSC and PAL systems. The switching action of NTSC to PAL or PAL to NTSC is performed using the switches on the board. When used for the NTSC system, set S2 on the DF-17 board and S5 on the AT-16 board at the NTSC position as shown in the figure below. When used for the PAL system, set the switches at the PAL position.

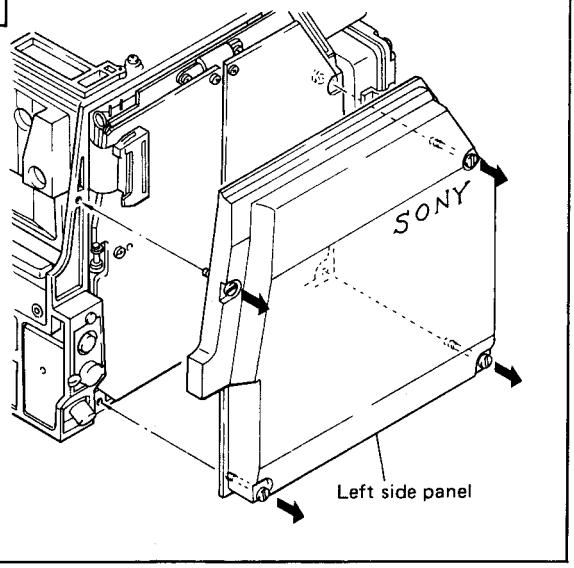


3-3. REPLACEMENT OF CAMERA TUBE

[REPLACEMENT OF RED TUBE]

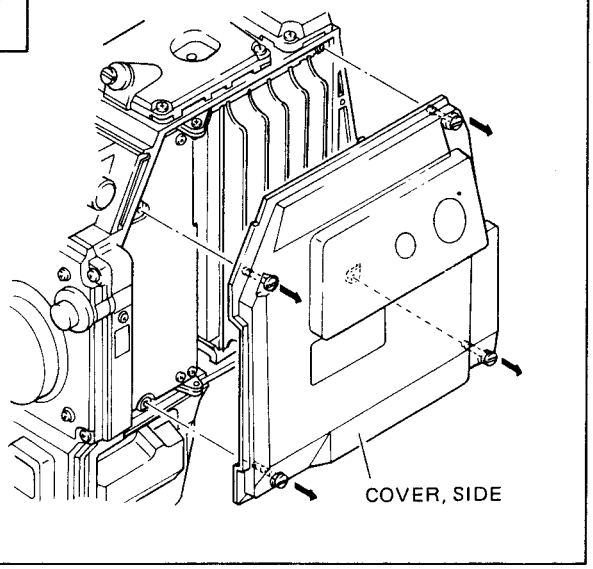
1. Loosen the four screws and remove the side cover.

1



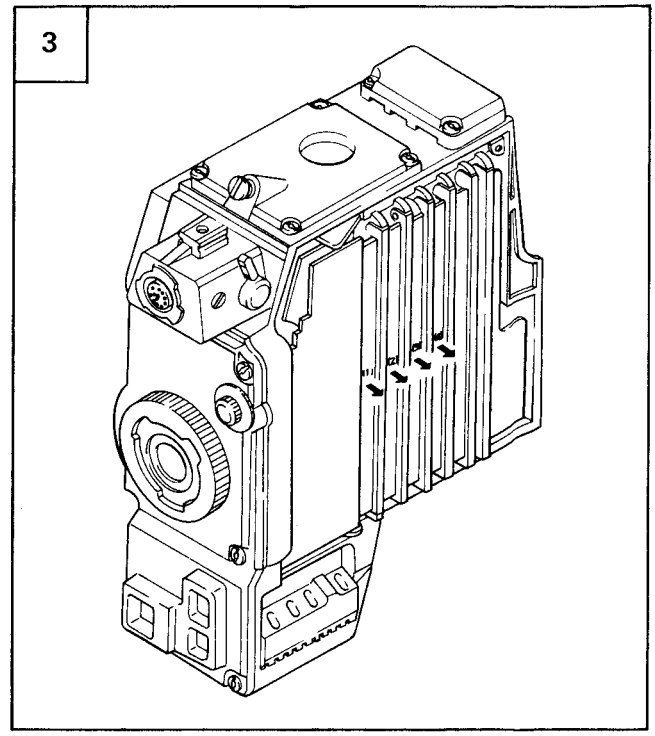
2. Loosen the four screws and remove the side cover.

2



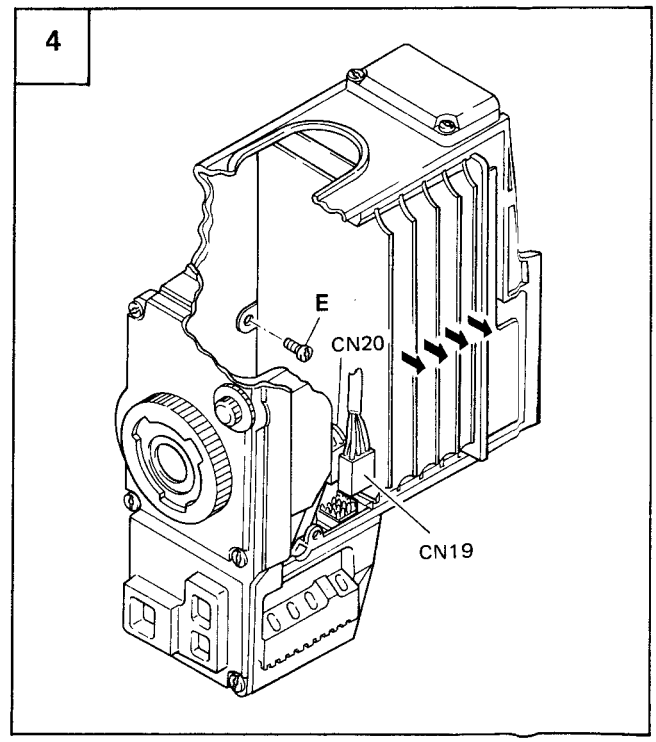
3. Pull out the boards (1), (2), (3) and (4) by using a board extractor.

3

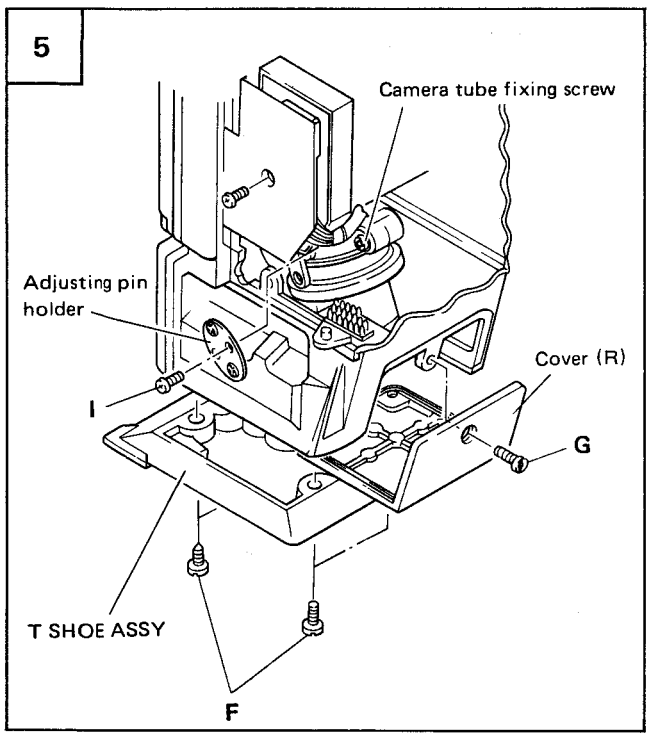


4. Remove the four screws E and pull out the four shield plates. Remove the connectors CN19 and CN20.

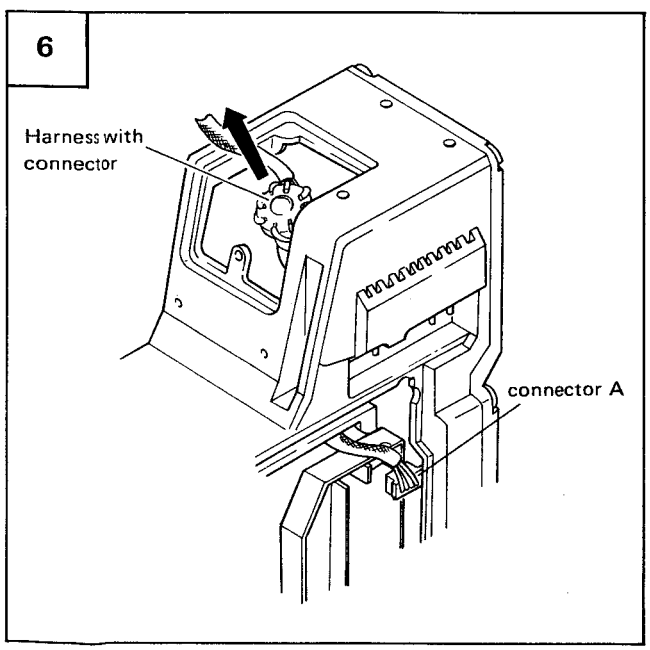
4



5. Remove the four screws F and remove the T-SHOE ASSY. Remove the three screws G to take out the cover (R). Remove the two screws I and take out the adjusting pin holder.
   Loosen the camera tube fixing screw.

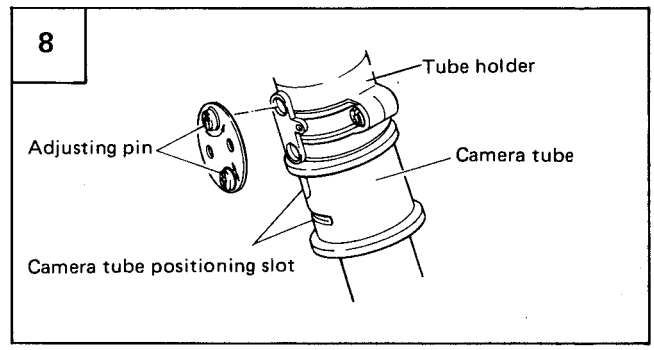


6. Remove the connector A from the PA board. Take out the camera tube from the tube holder. Remove the harness provided with connector from the camera tube.



7. Confirm that a new camera tube has its clear surface.

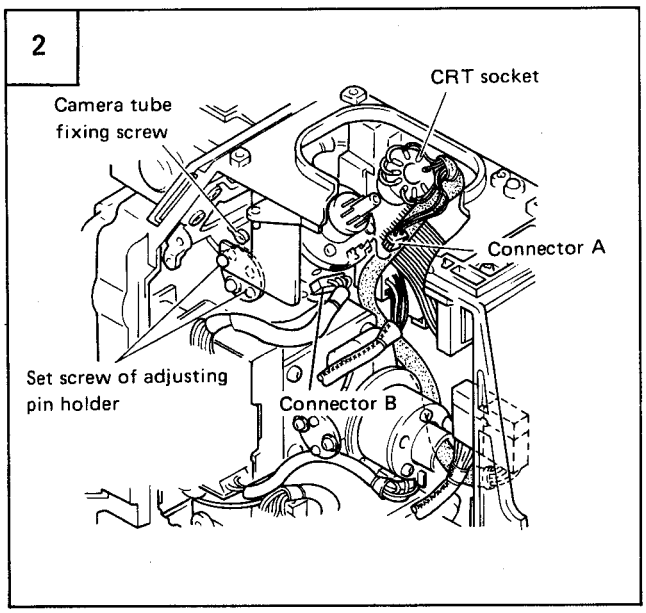
8. Insert a new replacement camera tube into the tube holder. At this time, insert it so that the camera tube positioning slot is located toward you. The positioning relation between the adjusting pin and camera tube positioning slot should be as shown in the figure.



9. When replacement of a RED tube is completed, perform the following section 4 items: RED Tube for Registration Adjustment and RED Tube for Adjustment of Video Signal System.

[REPLACEMENT OF BLUE TUBE]

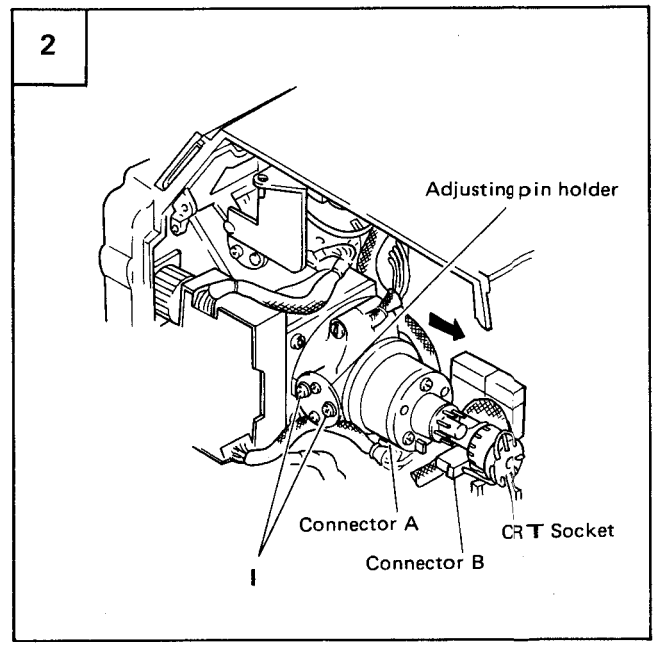
1. Perform Steps 1, 2, 3 and 4 in Replacement of RED tube.
2. Disconnect the CRT socket and the connectors A and B. Remove the two set screws of an adjusting pin holder to remove the pin holder. Loosen the camera tube fixing screw, and then take out the camera tube.



3. Confirm that a new camera tube has its clear surface.
4. Insert a new replacement camera tube into the tube holder. At this time, insert it so that the camera tube positioning slot is located toward you.
5. When replacement of a BLUE camera tube is completed, perform the following section 4 items: BLUE Tube for Registration Adjustment and BLUE Tube for Adjustment of Video Signal System.

[REPLACEMENT OF GREEN TUBE]

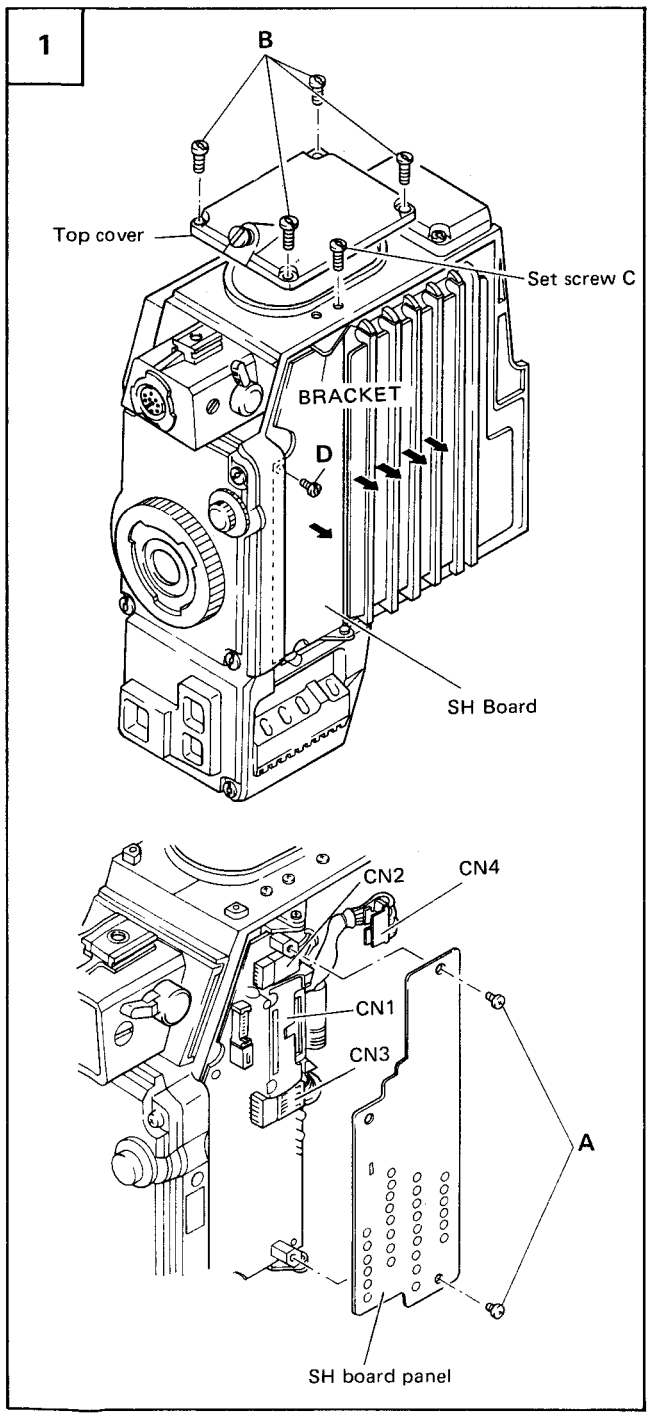
1. Perform Steps 1, 2, 3 and 4 in Replacement of RED tube.
2. Disconnect the CRT socket and the connectors A and B. Then, remove the two screws I and remove the adjusting pin holder to pull out the camera tube in the direction indicated by the arrow.



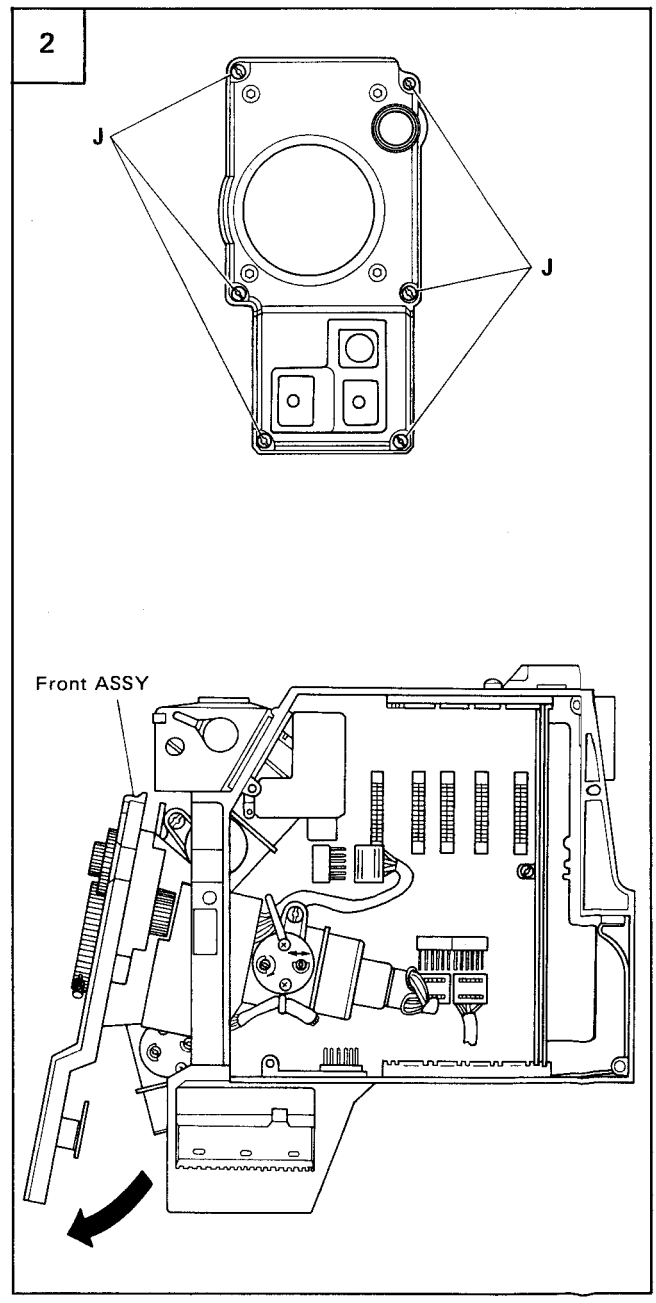
3. Confirm that a new camera tube has its clear surface.
4. Insert a new replacement camera tube into the tube holder. At this time, insert it so that the camera tube positioning slot is located toward you.
5. When assembling, be sure to pay attention to the harness position.
   (Refer to the figure shown in Step 6 in Replacement of Shutter.)
6. When replacement of a GREEN camera tube is completed, perform the following section 4 items: Registration Adjustment and Adjustment of Video Signal System.

3-4. REPLACEMENT OF SHUTTER

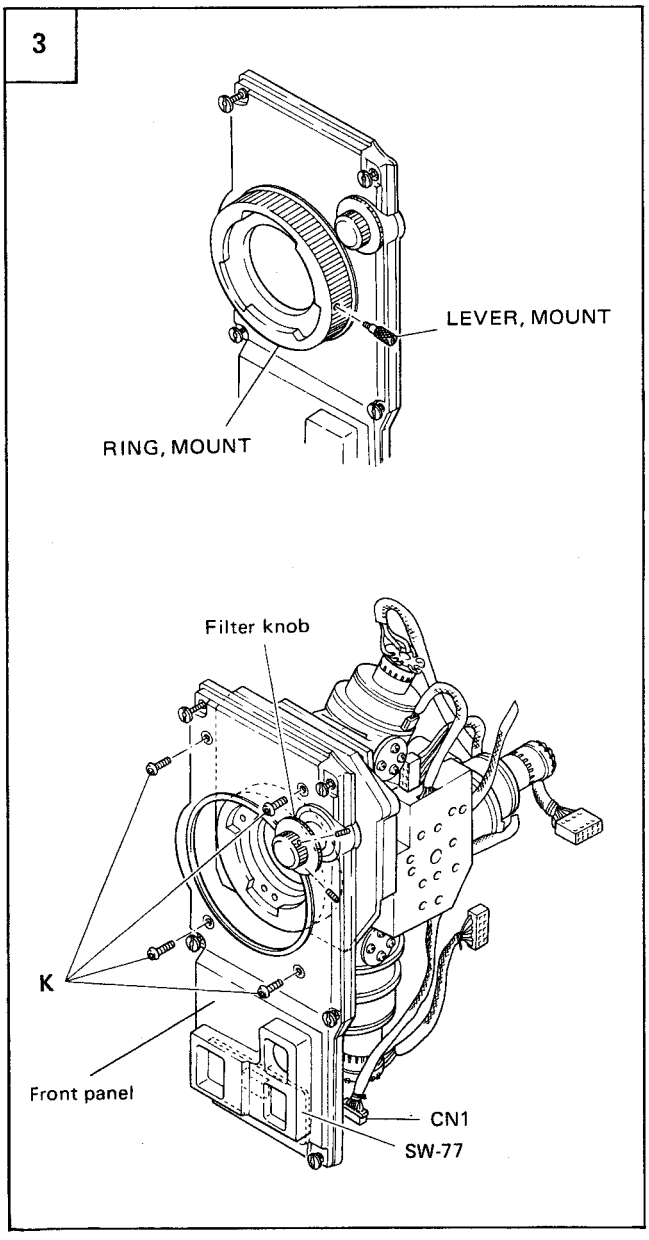
1. Remove the four screws B and remove the top cover. Remove the connector CN4 and two screws A on the SH board, remove the SH board panel, and then disconnect the connectors CN1, CN2 and CN3. Remove the two bracket set screws C and remove the SH board together with the bracket. Perform Steps 1, 2, 3 and 4 in Replacement of Red tube.



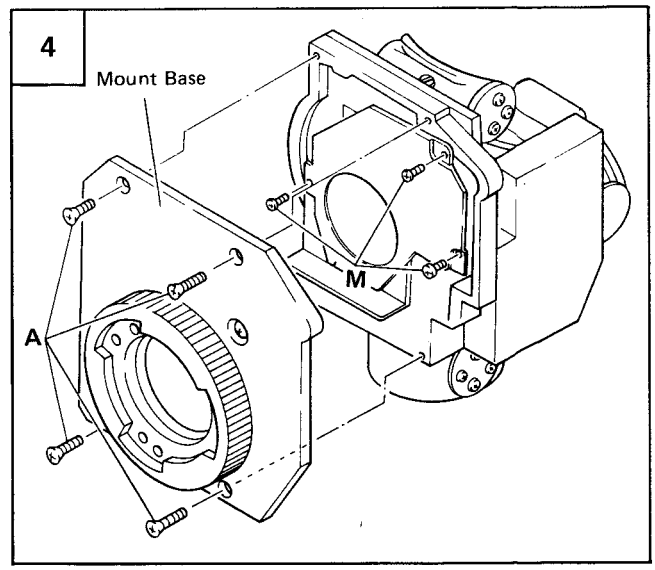
2. Remove the six front Assy fixing screws J. Pull out the lower part of the front Assy, and then remove the front Assy itself from the chassis. At that time, disconnect all the connectors from the front Assy, too.



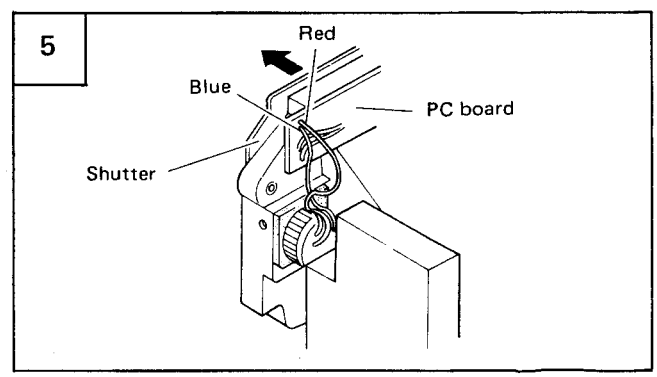
3. Remove the mount lever from the mount ring. Loosen the two set screws of a filter knob by using a L-shaped hexagonal wrench and remove the filter knob. Disconnect the connector CN1 on the SW-77 board, remove the four screws K by using a L-shaped hexagonal wrench (2.5), and then remove the front panel.



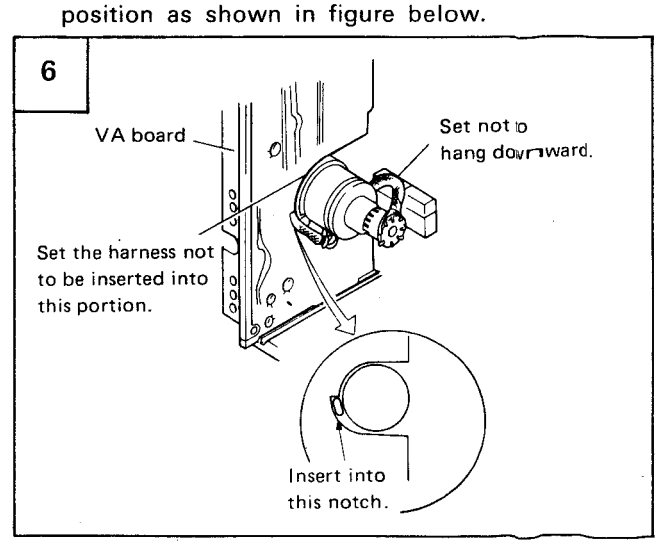
4. Remove the four screws A and remove the mount base from the optical block. Remove the three shutter fixing screws M.



5. Remove the red and blue lead wires from the printed circuit board by using a soldering iron. Pull out the shutter gently.

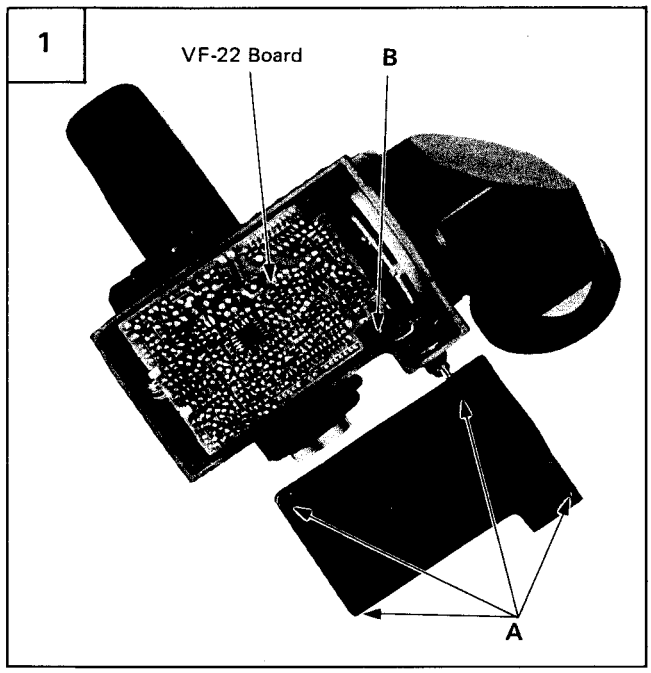


6. For replacement of a new shutter, attach in opposite procedures to disassembly. When assembling, be sure to pay attention to the harness position as shown in figure below.

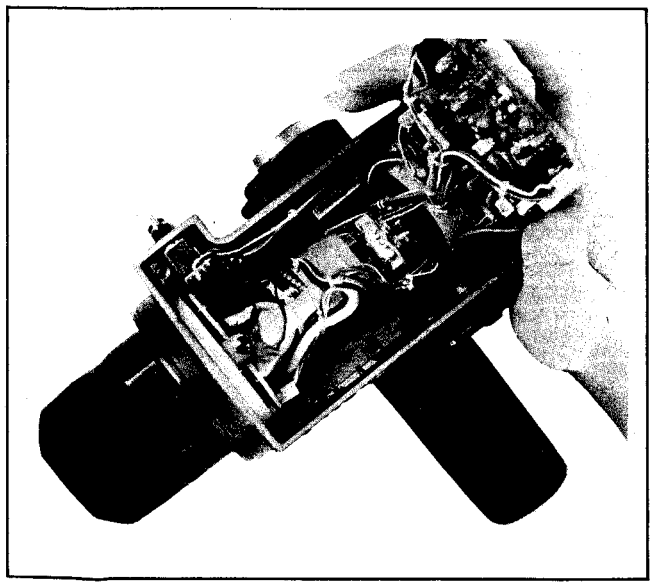


3-5. REPLACEMENT OF CRT

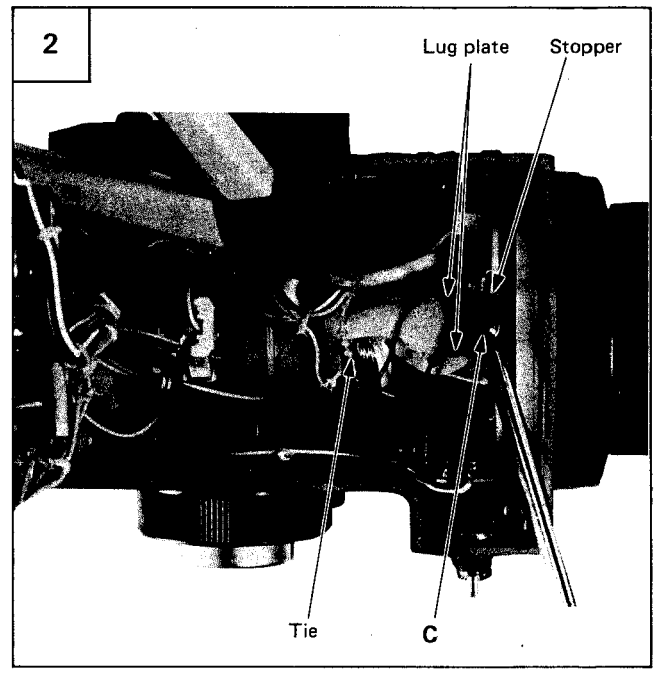
1. Remove the 4 rear cover screws (A) and take off the cover. Next, remove a fixing screw (B) of the VF-22 Board and remove the Board.



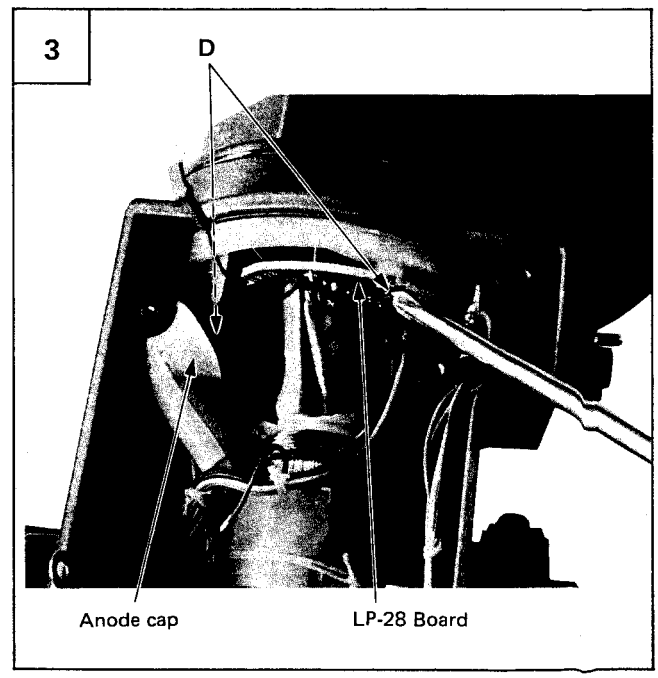
Note: Remember the arrangement of the harness in the viewfinder.
When you assemble the viewfinder after replacement of CRT, you should arrange the harness of viewfinder to prevent a damage of harness at the original position as shown below.



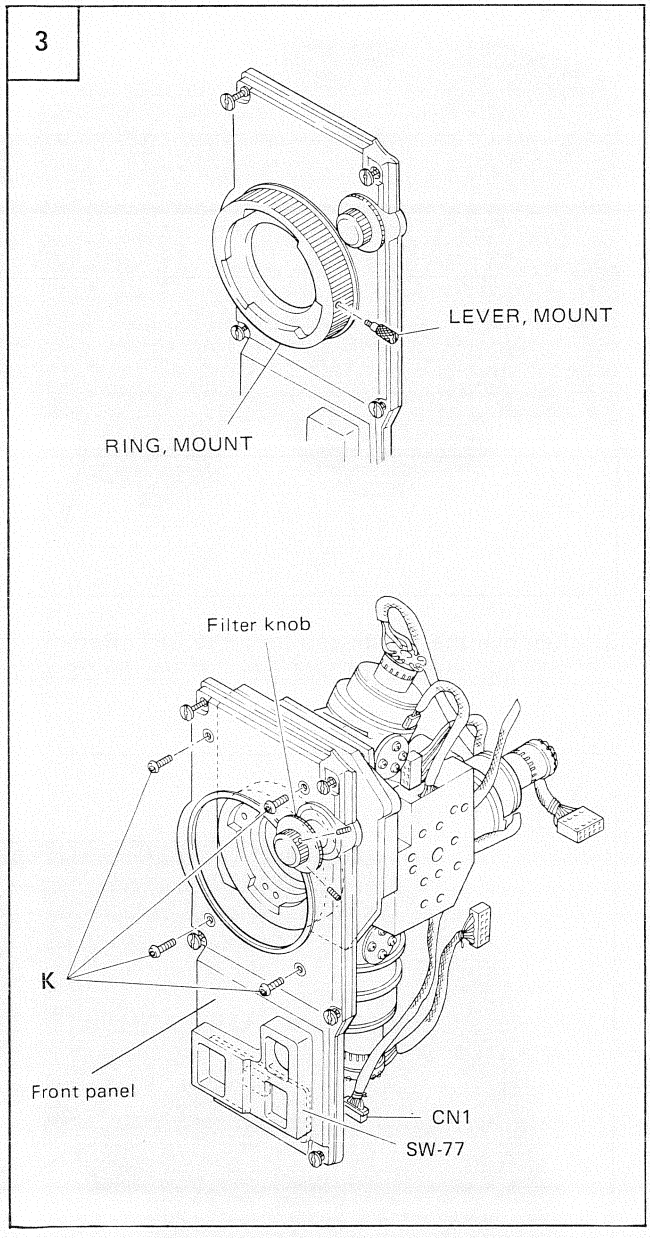
2. Turn the VF Tube so that the anode cap of CRT is upward. Remove the screw (C) and take off the stopper and 2 lug plates.
Cut a tie.



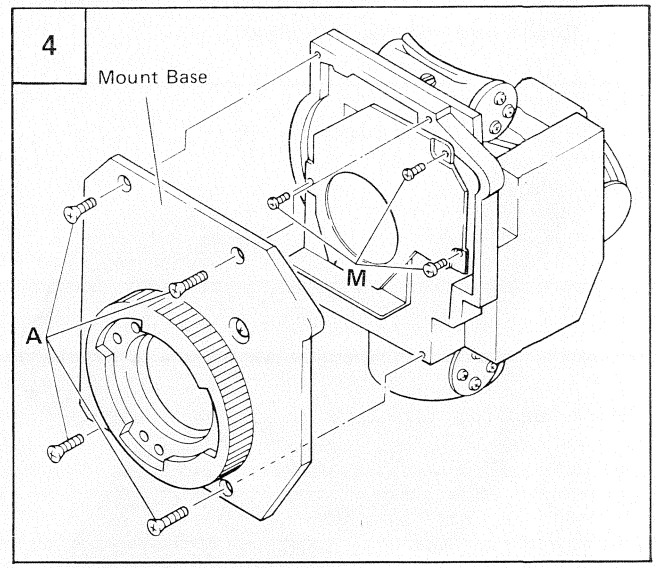
3. Remove the anode cap from the CRT. Remove the 2 fixing screws (D) and take off the LP-28 board.



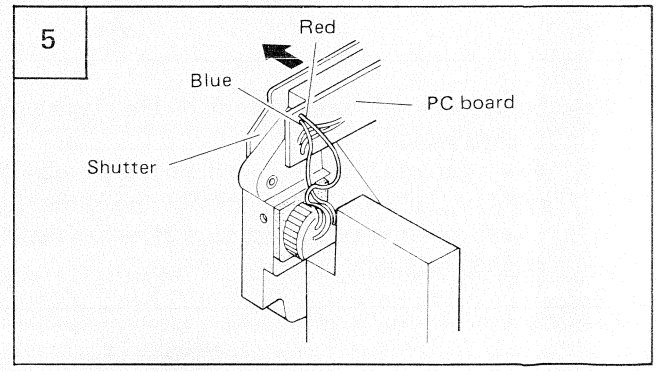
3. Remove the mount lever from the mount ring. Loosen the two set screws of a filter knob by using a L-shaped hexagonal wrench and remove the filter knob. Disconnect the connector CN1 on the SW-77 board, remove the four screws K by using a L-shaped hexagonal wrench (2.5), and then remove the front panel.



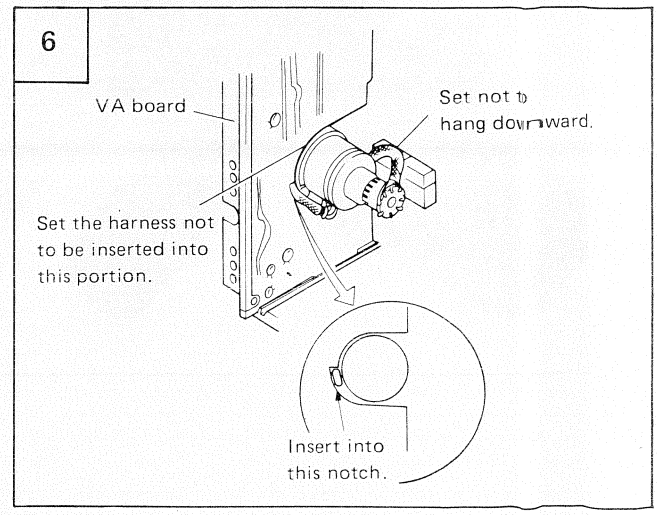
4. Remove the four screws A and remove the mount base from the optical block. Remove the three shutter fixing screws M.



5. Remove the red and blue lead wires from the printed circuit board by using a soldering iron. Pull out the shutter gently.

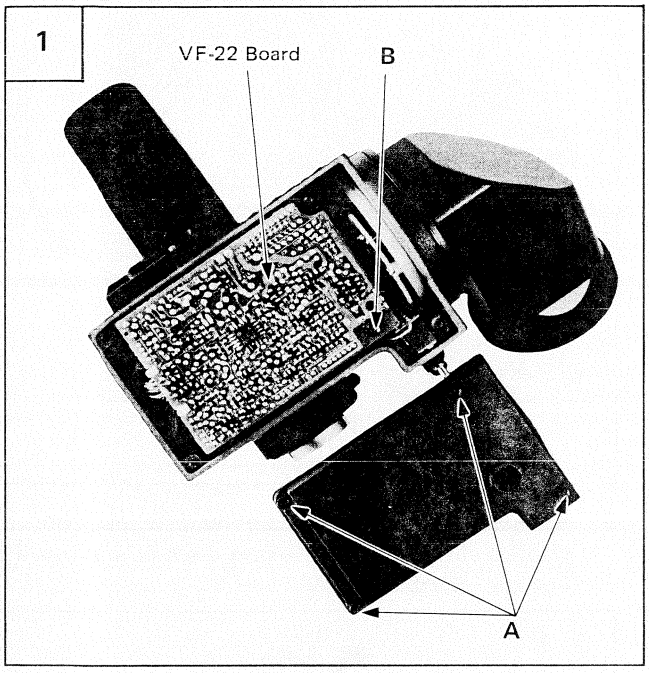


6. For replacement of a new shutter, attach in opposite procedures to disassembly. When assembling, be sure to pay attention to the harness position as shown in figure below.

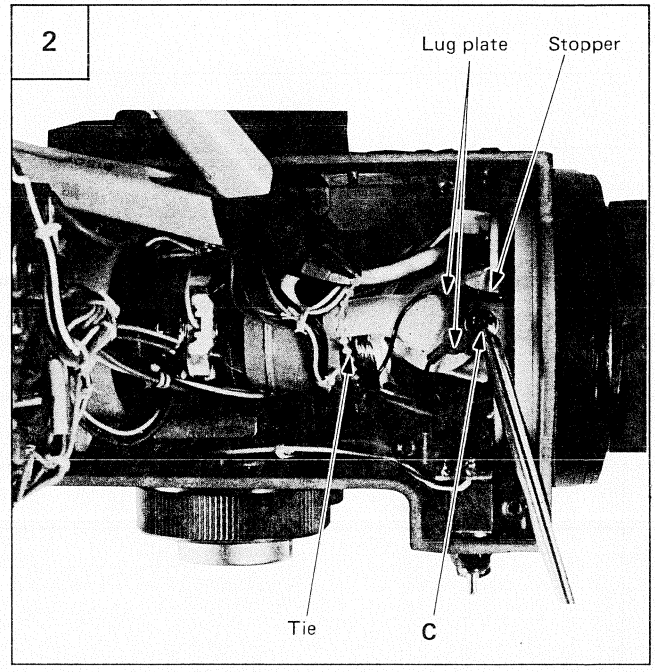


3-5. REPLACEMENT OF CRT

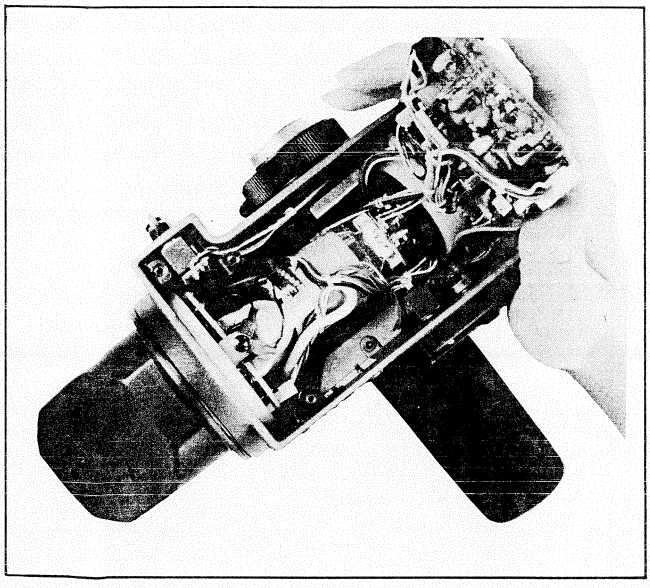
1. Remove the 4 rear cover screws (A) and take off the cover. Next, remove a fixing screw (B) of the VF-22 Board and remove the Board.



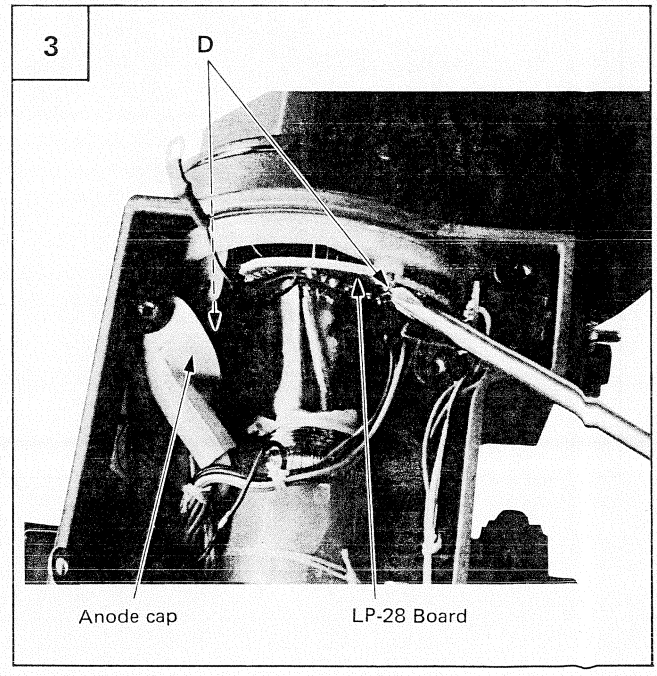
2. Turn the VF Tube so that the anode cap of CRT is upward. Remove the screw (C) and take off the stopper and 2 lug plates.
Cut a tie.



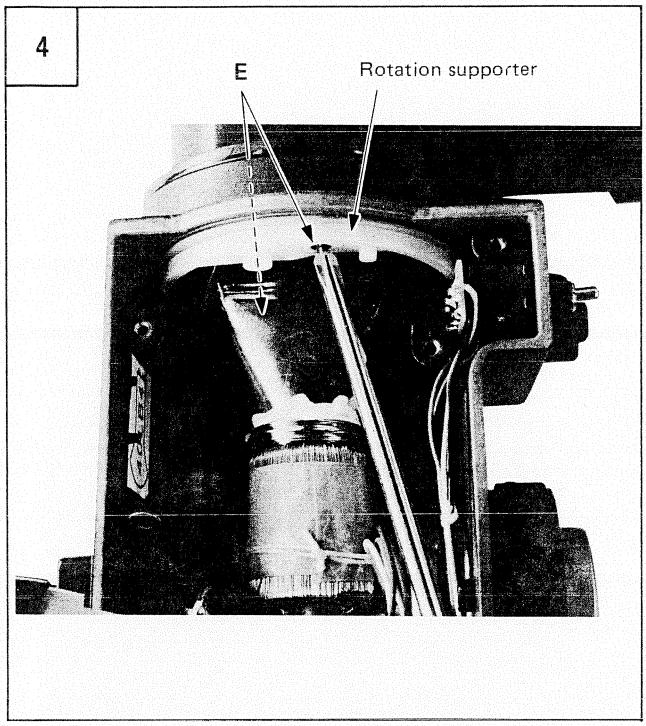
Note: Remember the arrangement of the harness in the viewfinder.
When you assemble the viewfinder after replacement of CRT, you should arrange the harness of viewfinder to prevent a damage of harness at the original position as shown below.



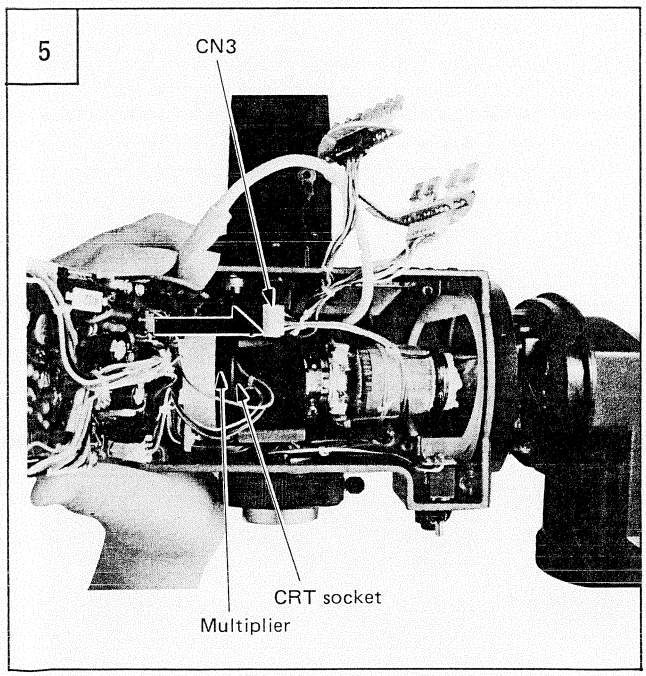
3. Remove the anode cap from the CRT. Remove the 2 fixing screws (D) and take off the LP-28 board.



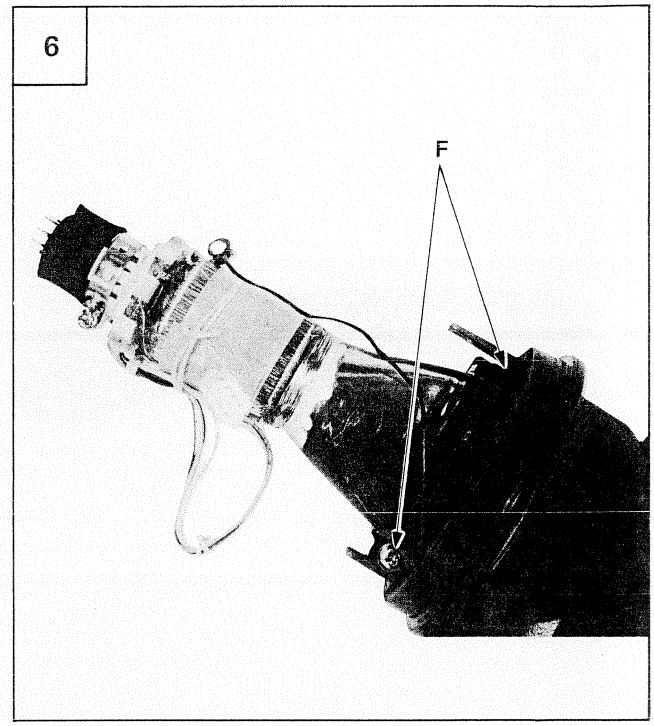
4. Remove the 2 fixing screws (E) and take off the rotation supporter.



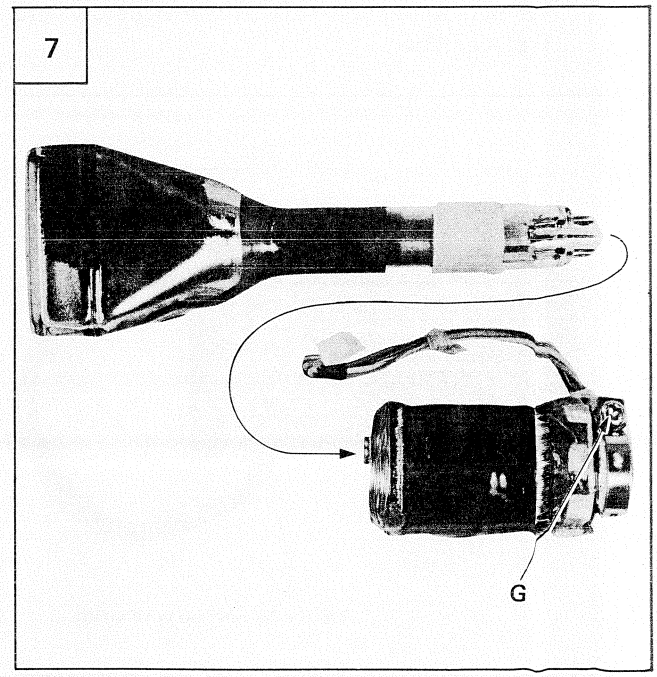
5. Pull the CRT out of the multiplier, and remove the CRT socket from the CRT.
Disconnect the CN3 of VF-22 board.



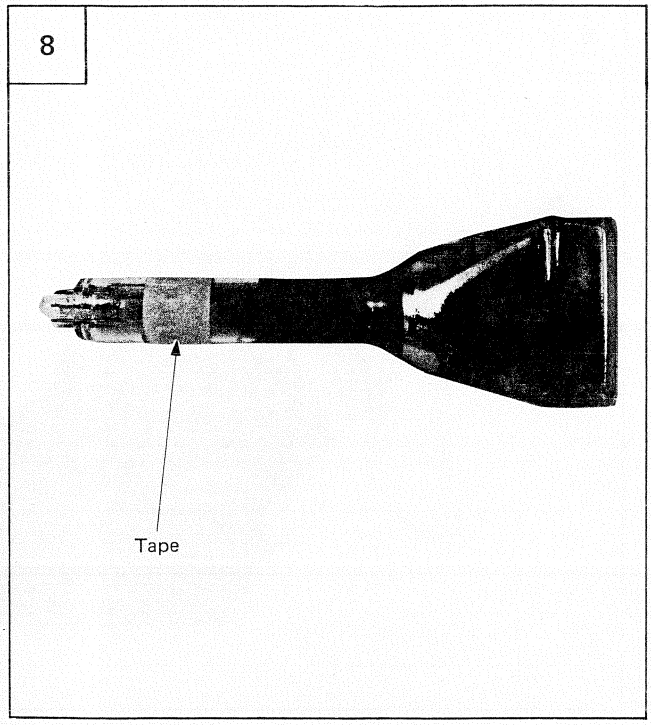
6. Loosen the 2 CRT retaining screws (F) and remove the CRT from the VF Tube.



7. Loosen the Deflection Yoke retaining screw (G) and remove the Deflection Yoke from the CRT.

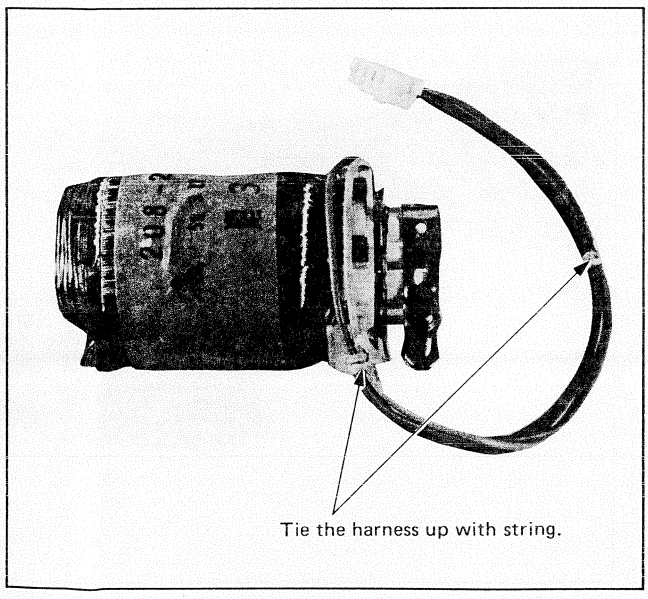


8. Tape around the neck of new CRT where the Deflection Yoke is to be attached, with a mending tape.



9. Assemble the viewfinder by reversing the steps.

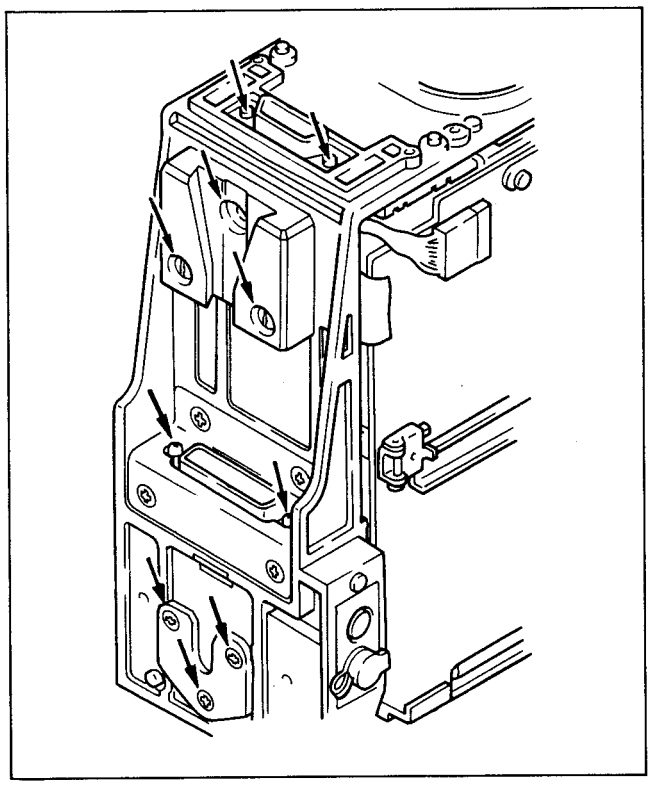
Note: If you replace a Deflection Yoke, please reform the new Deflection Yoke as shown below before replacement.



3-6. PRECAUTIONS ON REPLACEMENT OF VTR CONNECTOR (50-PIN CONNECTOR)

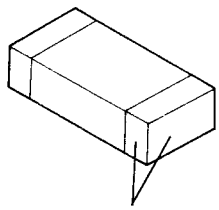
The VTR connector (50-pin connector) is attached using a high-precision special tool (CV positioning) so as to keep the accurate positioning relation with VTR mount (C shoe) and to dock with any of BVV-1/1A or BVV-1PS/1APS. Therefore, be sure not to loosen or remove the ten fixing screws shown in the figure below.

For replacement of the VTR connector (50-pin connector), contact your Sony dealer.



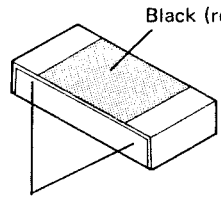
3-7. REPLACEMENT OF CHIP PARTS

Capacitor



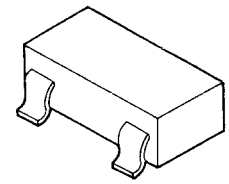
Covered with electrode.

Resistor



Not covered with electrode.

Diode and transistor



Tools required:

Soldering iron of approx. 20W
(Use a temperature controller, if possible, which can control the iron temperature to 270 ± 10°C.)
Braided wire (SOLDER TAUL)
Solder (A solder of 0.6 mm in diameter is recommended.)
Tweezers

Soldering conditions:

Iron temperature of 270 ± 10°C
A connector should be soldered within 2 seconds.

Procedures

1. To remove a resistor or capacitor, place the tip of a soldering iron on chip parts to heat the parts,and then move it horizontally for removal while being desoldered. For removal of a diode or transistor, heat the one side, with two pins, of chip parts at the same time, set the parts up when desoldered, and remove the two pins. And then, remove the pin on another side.
2. Absorb solder by using a braided wire to smooth the land surface of board after removal.
3. Confirm by visual check that no pattern of the removed chip parts is peeled off and no adjacent parts is damaged or bridged.
4. Perform a thin pretinning on the pattern.
5. Place new chip parts on the pattern to solder its both sides.

The chip parts removed should not be used again.

For details, refer to CHIP COMPONENTS MANUAL, Sony's parts No. 9-972-289-01 prepared by Sony Corporation.

SECTION 4
ALIGNMENT

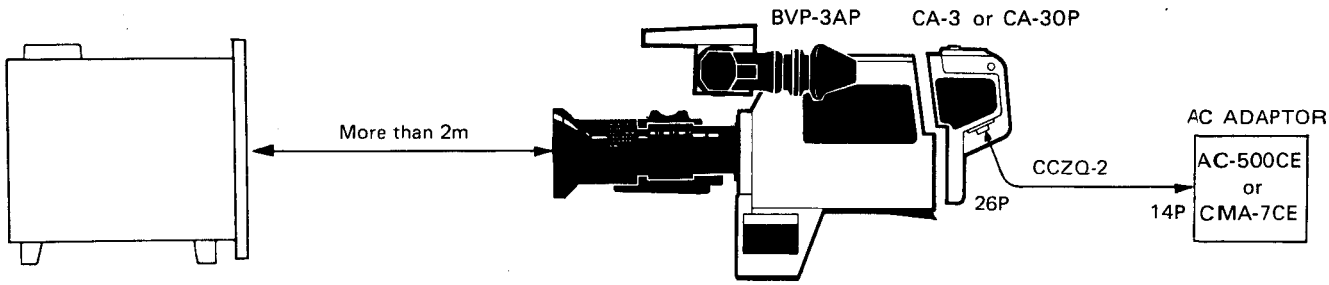
4-1. PREPARATION

4-1-1. Equipment Required

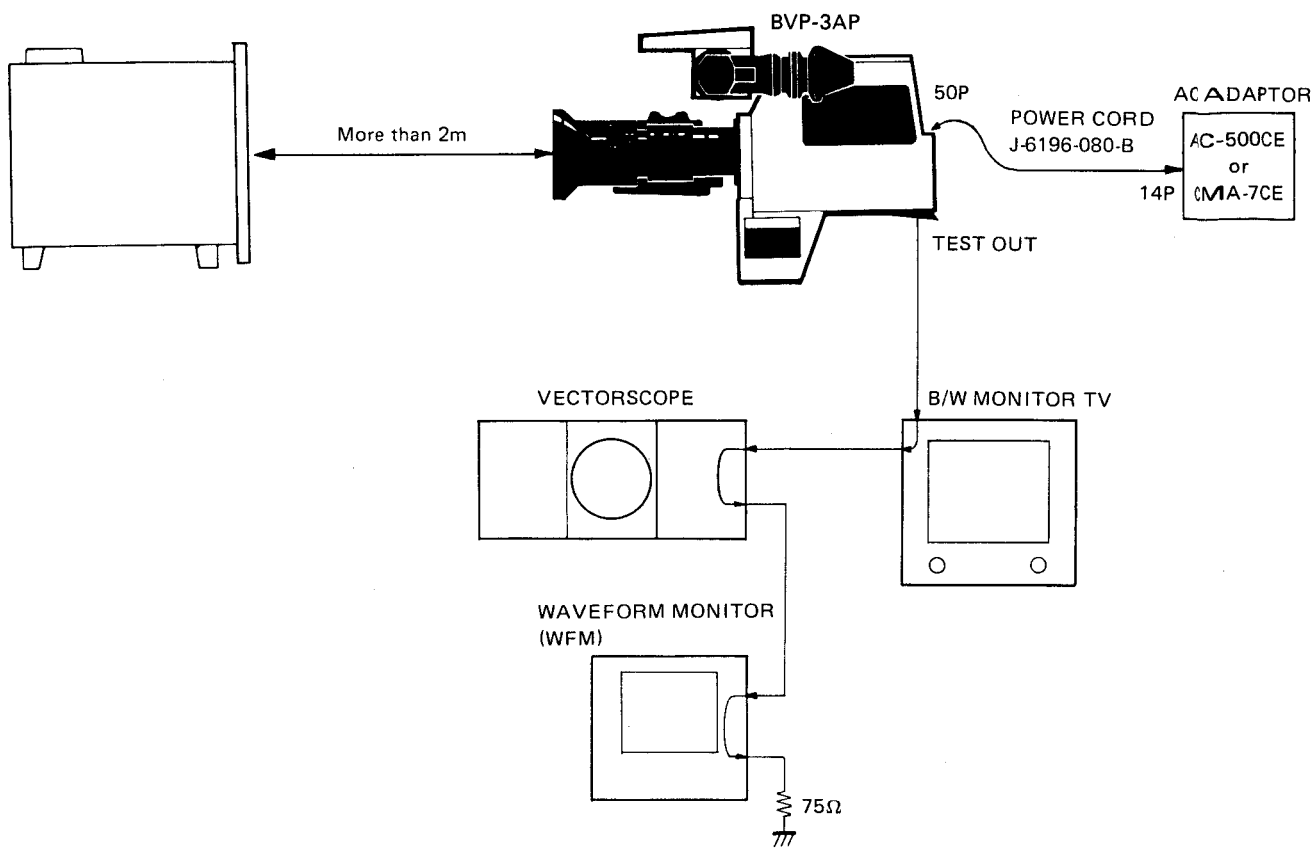
- Oscilloscope
- Waveform Monitor (WFM)
- Vectorscope
- B/W Monitor (H resolution: more than 700 TV lines)
- Test Signal Generator (Cross-hatching signal can be output.)
- Frequency Counter
- Digital Voltmeter
- CF Pulse Generator (Sony BVG-10P)
- AC Adaptor (Sony AC-500CE or CMA-7CE)
- Camera Adaptor (Sony CA-3 or CA-30P)

4-1-2. Connection

When CA-3 or CA-30P is used:

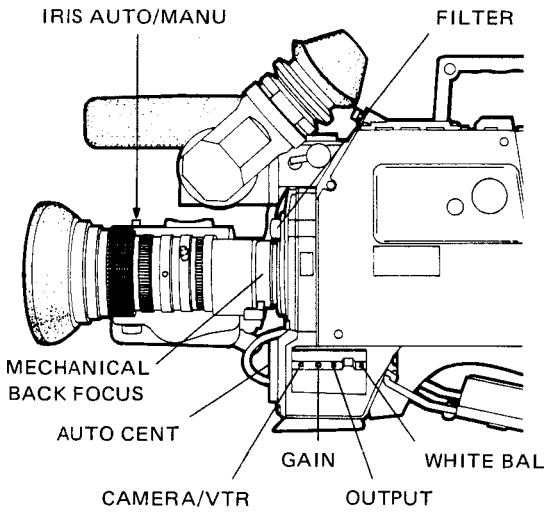


When only the camera is used:



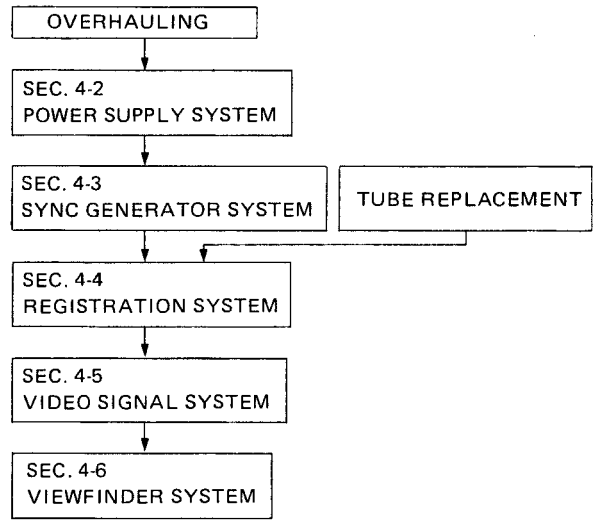
4-1-3. Switch Setting Positions before Adjustments

1. Warm up for about ten minutes with CAMERA/VTR switch "ON" before beginning adjustments.
2. Set the camera switches and controls as follows:



CAMERA/VTR switch	: ON
GAIN switch	: 0
OUTPUT switch	: CAM
WHITE BAL switch	: PRESET
AUTO CENT switch	: PRESET
FILTER knob	: 1 (3200°K)
Lens iris switch	: MANU
Mechanical back focus ring	: Set according to the mark.

4-1-4. Adjustment Procedures



[1] VA-14 board

BEAM (S1)	: OFF

[3] IE-6P board

DTL (S3)	: OFF

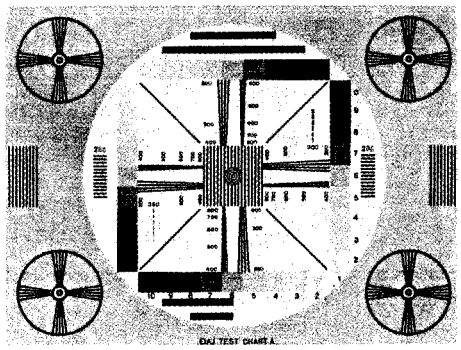
[4] PR-75 board

WHT CLIP (S1)	: OFF
MASKING (S2)	: OFF
R-γ (S3)	: OFF
G-γ (S4)	: OFF
B-γ (S5)	: OFF
REG/ENC (S8)	: REG
DCC (S9)	: OFF

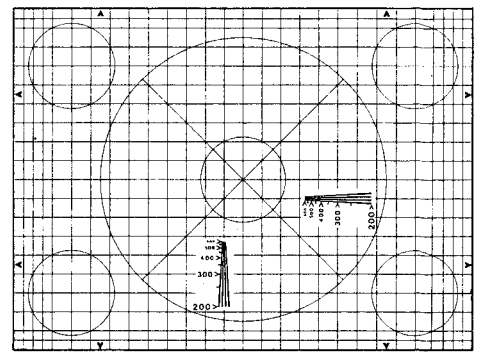
γ	(RV7, RV17, RV27)	: Mechanical center
PED	(RV3, RV13, RV23)	
GAIN	(RV8, RV18, RV28)	
FLR	(RV2, RV12, RV22)	: Counterclockwise ↺
W.CLIP	(RV6, RV16, RV26)	
MAIN.POINT	(RV20)	: Clockwise ↻

4-1-5. Fixture

J-6026-100-A	Resolution Chart

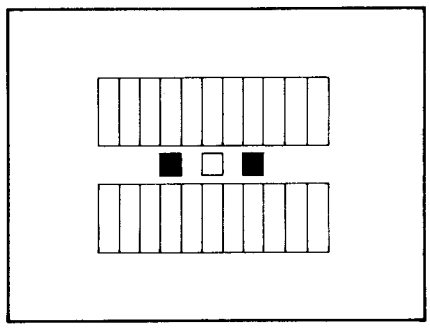


J-6026-120-A	Registration Chart

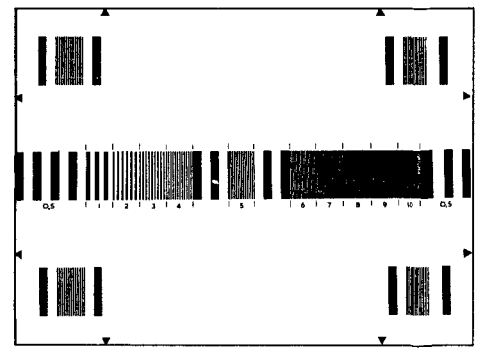


J-6026-130-A	Grayscale Chart

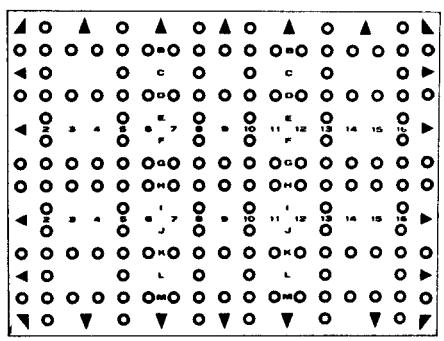
Stick the velvet (black) at both ends of white pattern in the center so as to avoid the light leakage.



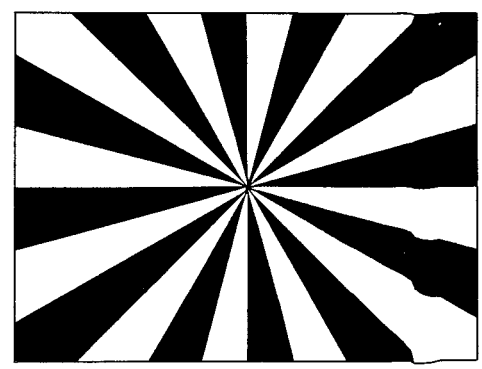
J-6026-110-A	Multiburst Chart



J-6021-890-A	Ball Pattern Chart

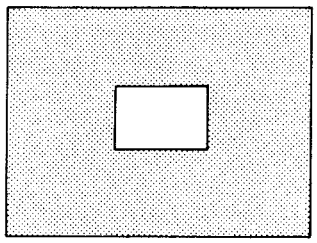


J-6024-340-B	Siemens Star Chart

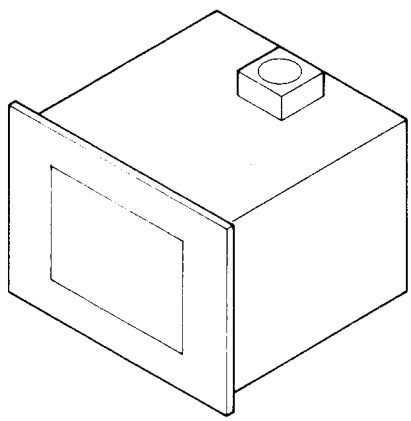


White Window Chart

Cut hole from the center of a sheet of black paper.

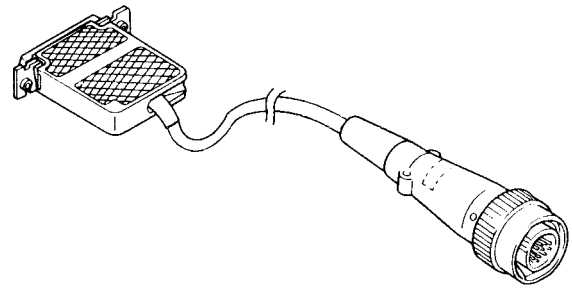


J-6029-140-A	Pattern Box PTB-500 (AC90 to 240V) (WITH COLOR BAR CHART)

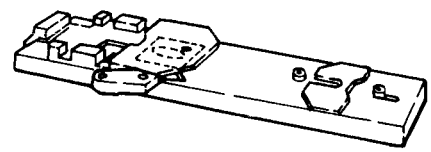


J-6196-080-B	DC Power Cord

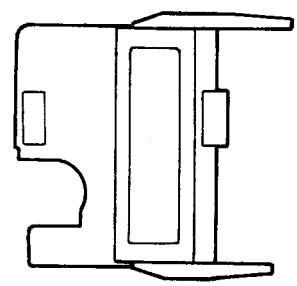
Necessary when a CA-3 or CA-30P is not used.



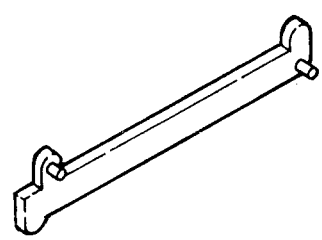
A-7408-015-C	Tripod Adaptor



A-7511-898-A	Extension Board (EX-24)



X-3678-613-0	Board Extractor



4-2. POWER SUPPLY ADJUSTMENT

Notes:
- The adjustment is not necessary if error is within 3% of rated voltage.
- When this adjustment is made, all of the following will be required.
- Step 4-2-1 through step 4-2-4, should be adjusted in order.

To be extended : PW-93 board

4-2-1. +9.5V Adjustment

Measuring equipment: Digital voltmeter
To be measured : TP2/PW-93 board
(⏚ GND/extension board)
To be adjusted : ⊘ RV2/PW-93 board
Specification : +9.5 ± 0.01V DC

4-2-2. +9.0V Adjustment

Measuring equipment: Digital voltmeter
To be measured : A19 or B19 (⏚ GND)/extension board
To be adjusted : ⊘ RV3/PW-93 board
Specification : +9.0 ± 0.01V DC

4-2-3. +6.3V Adjustment

Measuring equipment: Digital voltmeter
To be measured : Cathode of D36/PW-93 board
(⏚ GND/extension board)
To be adjusted : ⊘ RV1/PW-93 board
Specification : +6.3 ± 0.01V DC

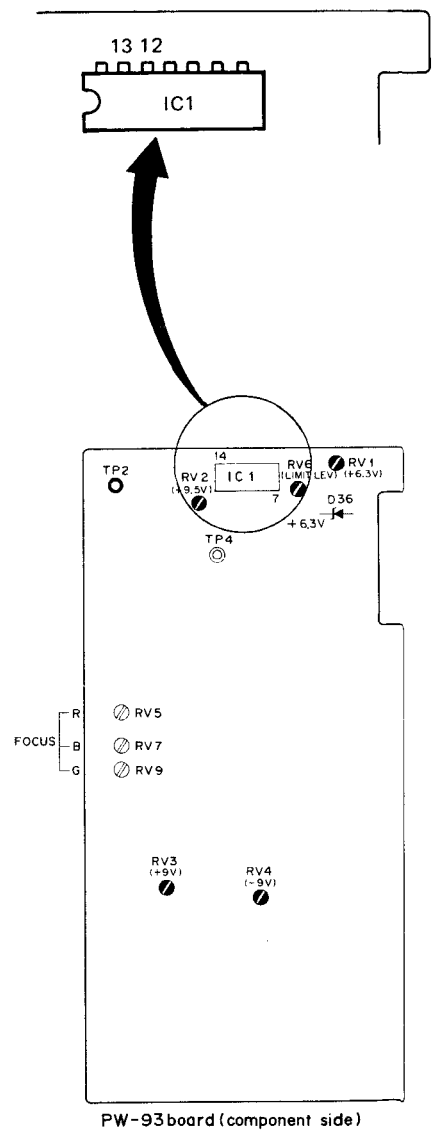
4-2-4. −9.0V Adjustment

Measuring equipment: Digital voltmeter
To be measured : A1 or B1 (⏚ GND)/extension board
To be adjusted : ⊘ RV4/PW-93 board
Specification : −9.0 ± 0.01V DC

4-2-5. Overcurrent Detect Adjustment

Measuring equipment: Digital voltmeter
(⏚ GND/extension board)

1. Measure the voltage at pin 13 of IC1/PW-93 board and take note this value.
2. Adjust ⊘ RV6/PW-93 board so that the voltage at pin 12 of IC1/PW-93 board is 0.03V less than voltage measured in Step 1.



PW-93 board (component side)

4-3. SYNC GENERATOR ADJUSTMENT

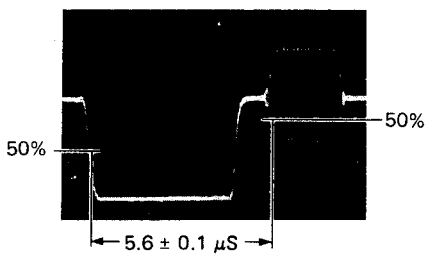
Notes:
- Warm up the camera for about 15 minutes before adjustment.
- Be sure in INT mode (Not in GENLOCK mode) Check not to be in the GENLOCK mode.
- Set the lens iris to CLOSE, unless otherwise specified.

4-3-1. Subcarrier Frequency Adjustment

Measuring equipment: Frequency counter
Connect an inductor (more than 100 μH) in series with the probe of a counter.
To be measured : TP1 (⏚ E1)/SG-63A board
To be adjusted : ⊘X1/SG-63A board
Specification : 4,433,619 ± 3 Hz

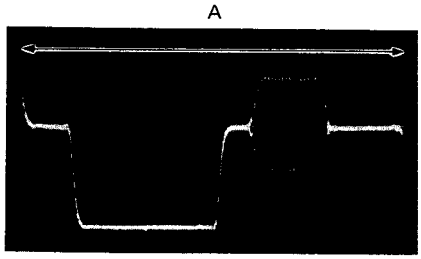
4-3-2. Burst-Flag Adjustment

Measuring equipment: Oscilloscope or waveform monitor
To be measured : TEST OUT terminal
To be adjusted : ⊘ RV3/SG-63A board
Specification :



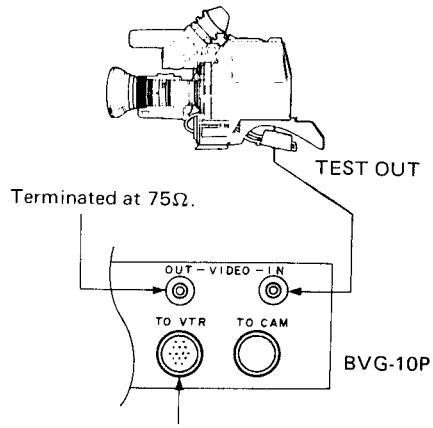
4-3-3. H. BLKG Phase Adjustment

Measuring equipment: Oscilloscope
To be measured : TEST OUT terminal
To be adjusted : S3/SG-63A board
Preparation : Shoot entire white of pattern box with auto position.
Lens iris : Adjust the iris control so that the output level at TEST OUT is 700 mV.
Specification : A = 12.0 ± 0.25 μs

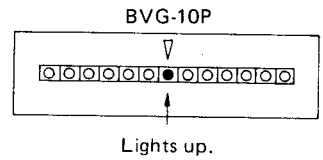


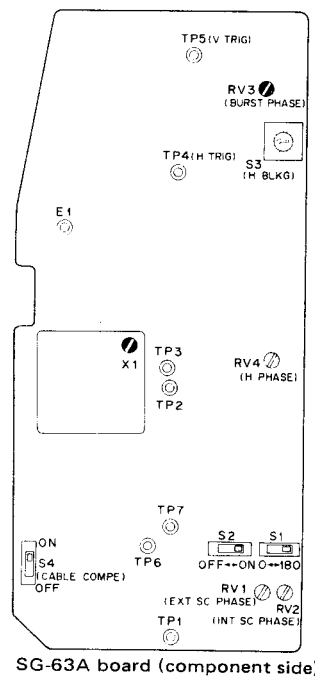
4-3-4. Internal SC Phase Adjustment

Measuring equipment: CF pulse generator (BVG-10P)
Connection :



1. Select switch of the BVG-10P to SOURCE CHECK.
2. Adjust the ⊘RV2/SG-63A board so that the center LED lamp of the BVG-10P lights.

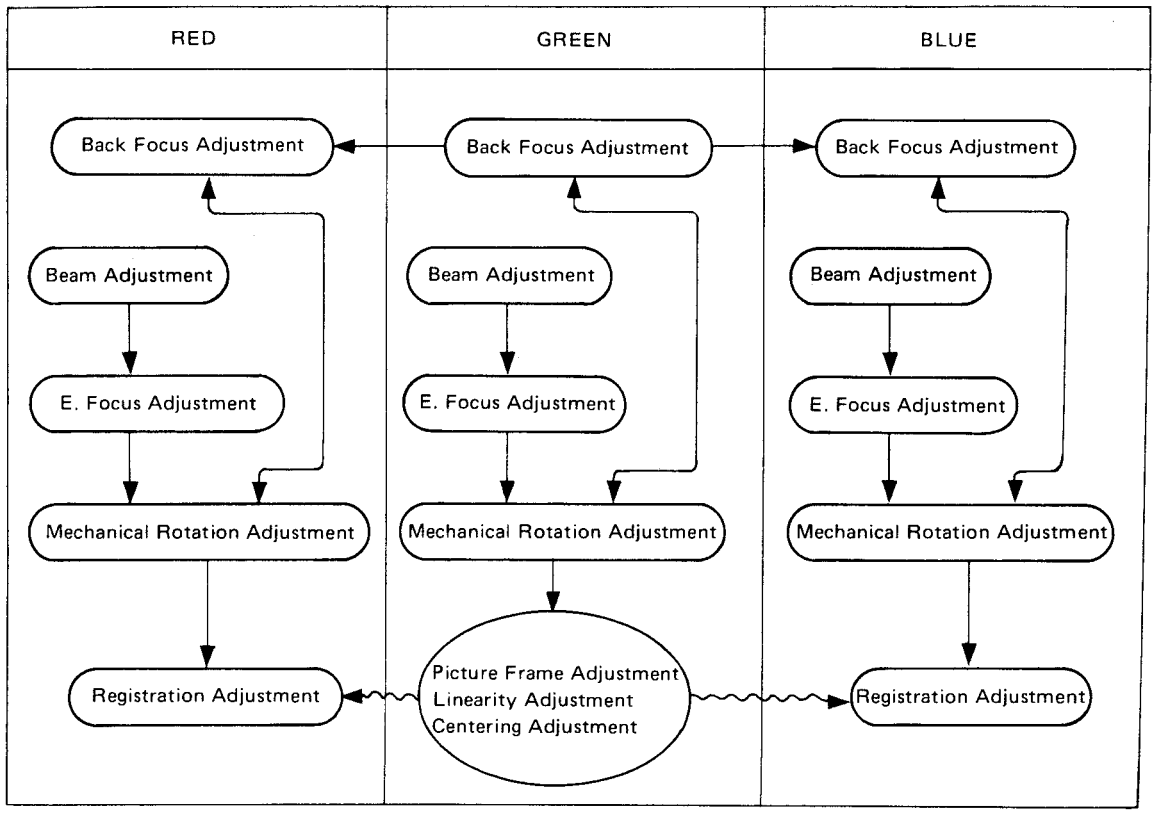




SG-63A board (component side)

4-4. REGISTRATION ADJUSTMENT

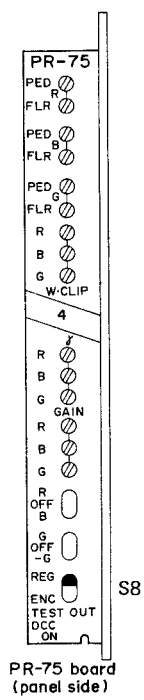
For registration adjustment, each adjustment effect each other, therefore, the repeated adjustment will be required. Following table shows general idea of a relation for each adjustment. The coarse adjustment is as described below. Following table is shown the selection of the switches.



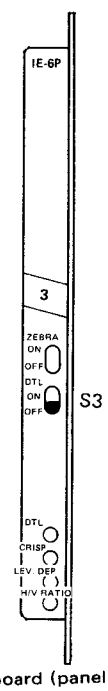
Each switch setting in registration adjustment in order to adjust the registration.

S3 DTL /IE-6P board → OFF

S8 REG/ENC /PR-75 board →REG



PR-75 board (panel side)



IE-6P board (panel side)

Notes: Meaning of arrows on above table:

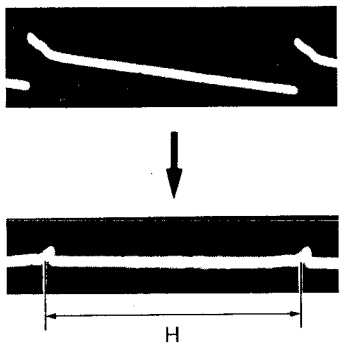
If A is adjusted, B should be checked or require to adjust.

Adjustment A effecting to B. (B conforms to A.)

4-4-1. H. Deflection Balance Adjustment

Note: Calibrate the oscilloscope CH1 and CH2 gain.

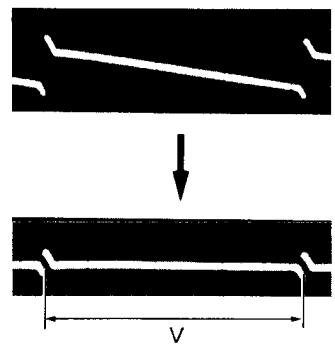
To be extended : DF-17 board
Measuring equipment: Dual trace oscilloscope
To be measured : CH1 → TP2, CH2 → TP3, (⏚ E1) } /DF-17 board
Mode : ADD
Trigger : TP4 (H. TRIG)/SG-63A board
To be adjusted : ⊘ RV24/DF-17 board

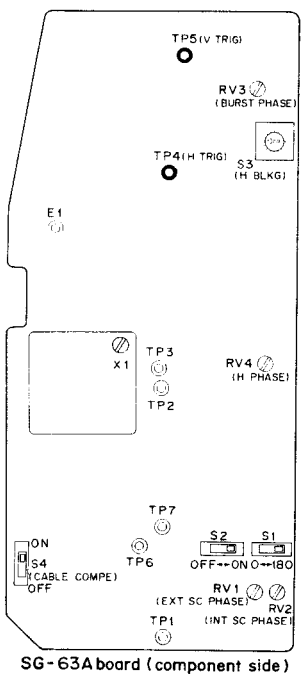


4-4-2. V. Deflection Balance Adjustment

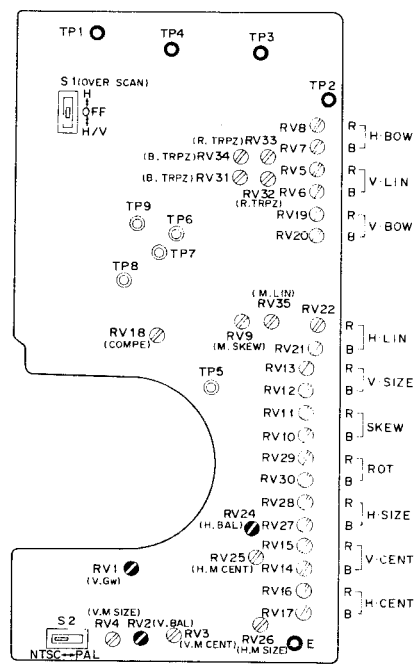
Note: Calibrate the oscilloscope CH1 and CH2 gain.

To be extended : DF-17 board
Measuring equipment: Dual trace oscilloscope
To be measured : CH1 → TP1, CH2 → TP4, (⏚ E1) } /DF-17 board
Mode : ADD
Trigger : TP5 (V. TRIG)/SG-63A board
To be adjusted : ⊘ RV2/DF-17 board





SG-63A board (component side)



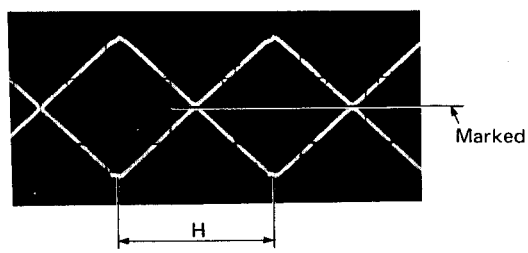
DF-17 board (component side)

4-4-3. Gw Voltage Adjustment

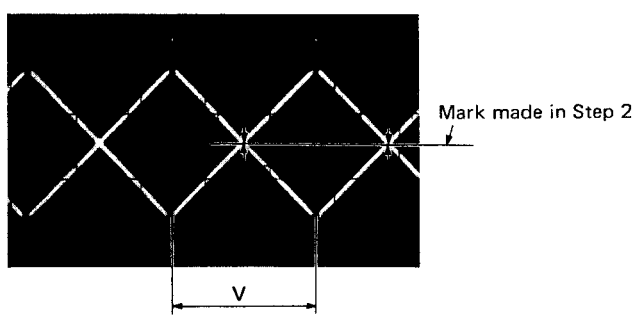
Note:
- Be sure to carry out 4-4-1. H. Deflection Balance Adjustment and 4-4-2. V. Deflection Balance Adjustment before this adjustment.
- Calibrate the oscilloscope CH1 and CH2 gain.

To be extended : DF-17 board
Measuring equipment: Dual trace oscilloscope
Mode : ALT
Preparation : Set the oscilloscope VOLTS/DIV to 20 and set correctly the grounding in the channels 1 and 2.
Trigger : TP4 (H.TRIG), TP5 (H.TRIG) } /SG-63A board

1. CH1 → TP2, CH2 → TP3, (⏚ E1) } /DF-17 board
2. Mark at the intersection of positive and negative deflection waveforms.



3. CH1 → TP1, CH2 → TP4, (⏚ E1) } /DF-17 board
4. Using ⊘ RV1 on the DF-17 board, align the intersection of vertical deflection waveforms with the mark made in Step 2.

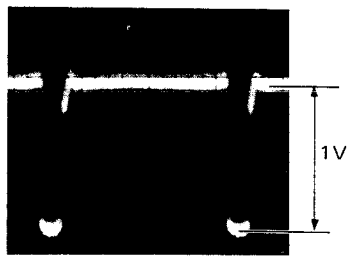


4-4-4. G. Beam, ABO Adjustment

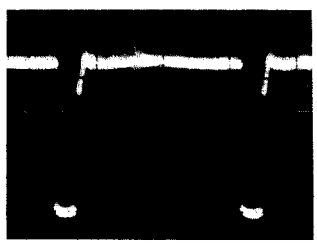
Note: Avoid continuous shooting of bright object in order to protect the tubes, for a long period.

Object : White window chart
Measuring equipment: Oscilloscope
To be extended : VA-14 board
Preparations : ● RV11 → Fully Counterclockwise ↺
● RV12 → Fully Clockwise ↻
● RV14 → Fully Counterclockwise ↺
● RV15 → Fully Counterclockwise ↺
} /VA-14 board
Trigger : TP4 (H.TRIG)/SG-63A board

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that level at B9/extension board is 0.4 Vp-p, and take note of F value.
3. Open the lens iris gradually and adjust the ●RV13 [G. BEAM] /VA-14 board so that the video waveform of B9 just starts to clip at 1V.

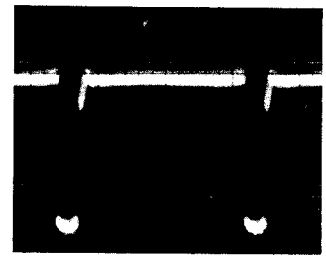


4. Turn the ●RV11/VA-14 board clockwise so that the waveform of B9 is slightly oscillated.

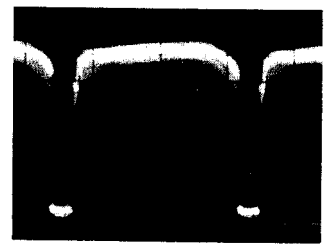


If the waveform of B9 is not oscillated by turning the ●RV11 fully clockwise, set the ●RV11 immediately before the lack of beam occurs by opening the lens iris 3 more stops than 2. In this case, the adjustments in Steps 5 and 6 are not required.

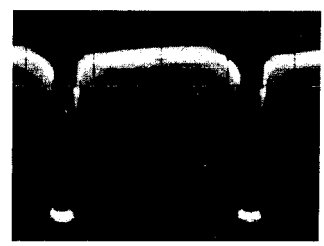
5. Stop oscillating by Adjusting the ●RV15/VA-14 board.

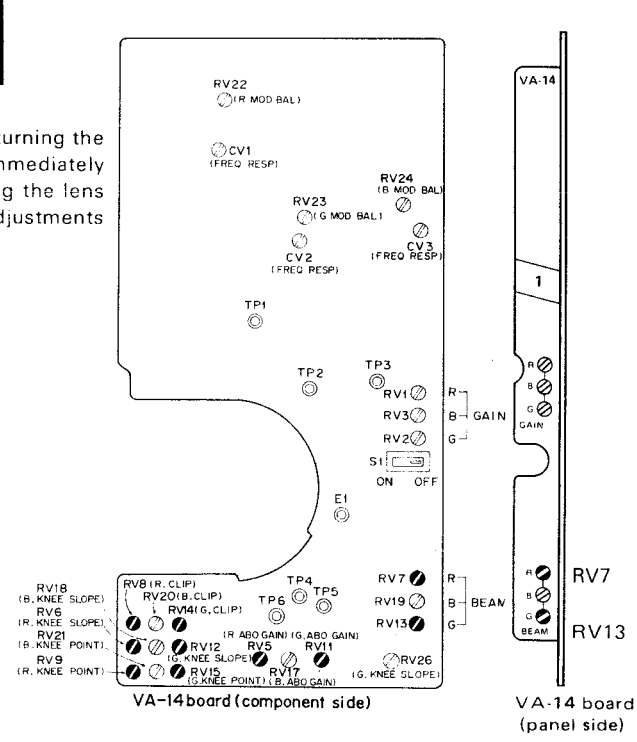


6. Open the lens iris 3 more stops from F value noted on Step 1 and adjust the ●RV12/VA-14 board to avoid the lack of beam or oscillation.



7. Adjust the ●RV14/VA-14 board so that the waveform is clipped with same iris position in Step 5.



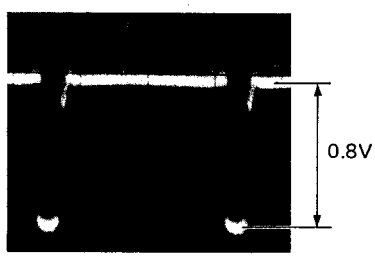


4-4-5. R. Beam, ABO Adjustment

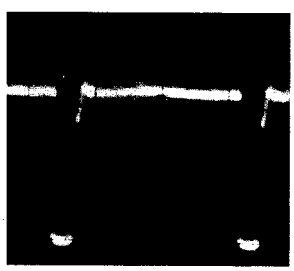
Note: Avoid continuous shooting of bright object in order to protect the tubes, for a long period.

Object : White window chart
Measuring equipment: Oscilloscope
To be extended : VA-14 board
Preparations : ⊘ RV5 → Fully Counterclockwise ↺
⊘ RV6 → Fully Clockwise ↻
⊘ RV8 → Fully Counterclockwise ↺
⊘ RV9 → Fully Counterclockwise ↺
} /VA-14 board
Trigger : TP4 (H.TRIG)/SG-63A board

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that level at B9/extension board is 0.4 Vp-p, and take note of F value.
3. Open the lens iris gradually and adjust the ⊘RV7 R. BEAM /VA-14 board so that the video waveform of B7/ extension board just starts to clip at 0.8V.

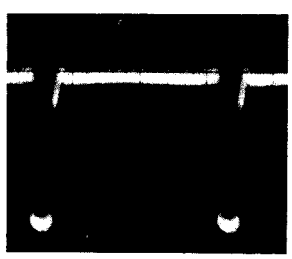


4. Turn the ⊘RV5/VA-14 board clockwise so that the waveform of B7 is slightly oscillated.

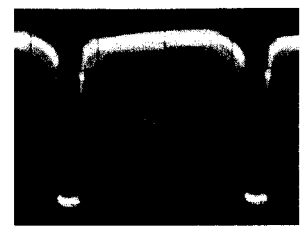


If the waveform of B7 is not oscillated by turning the ⊘RV5 fully clockwise, set the ⊘RV5 immediately before the lack of beam occurs by opening the lens iris 3 more stops than 2. In this case, the adjustments in Steps 5 and 6 are not required.

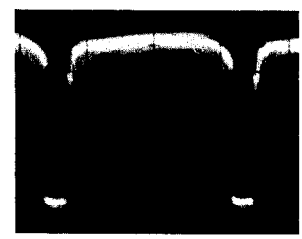
5. Stop oscillating by Adjusting the ⊘RV9/VA-14 board.

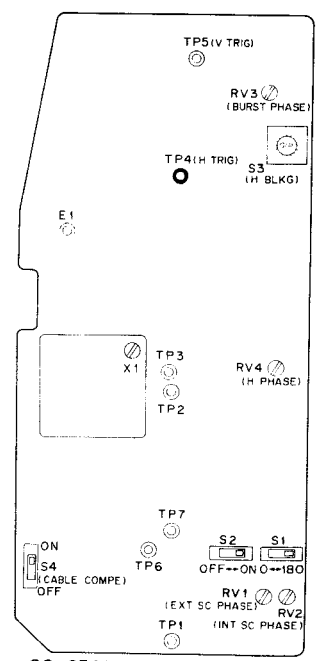


6. Open the lens iris 3 more stops from F value noted on Step 1 and adjust the ⊘RV6/VA-14 board to avoid the lack of beam or oscillation.



7. Adjust the ⊘RV8/VA-14 board so that the waveform is clipped with same iris position in Step 5.





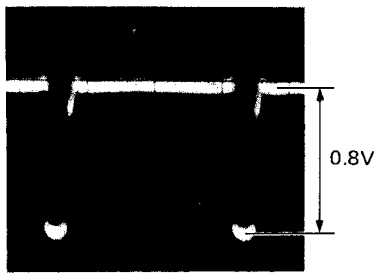
SG-63A board (component side)

4-4-6. B. Beam, ABO Adjustment

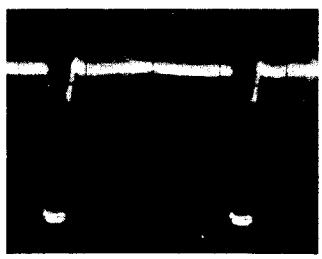
Note: Avoid continuous shooting of bright object in order to protect the tubes, for a long period.

Object : White window chart
Measuring equipment: Oscilloscope
To be extended : VA-14 board
Preparations : ◐RV17 → Fully Counterclockwise↺
◐RV18 → Fully Clockwise↻
◐RV20 → Fully Counterclockwise↺
◐RV21 → Fully Counterclockwise↺
} /VA-14 board
Trigger : TP4 (H.TRIG)/SG-63A board

1. Adjust the zoom control so that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that level at B9/extension board is 0.4 Vp-p, and take note of F value.
3. Open the lens iris gradually and adjust the ◐RV19 [B. BEAM] /VA-14 board so that the video waveform of A11/ extension board just starts to clip at 0.8V.

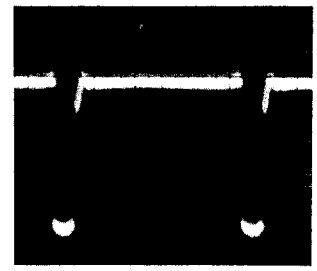


4. Turn the ◐RV17/VA-14 board clockwise so that the waveform of A11 is slightly oscillated.

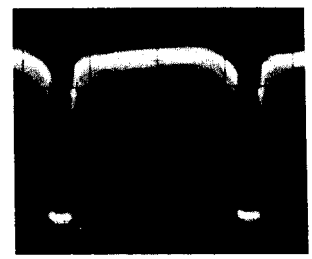


If the waveform of A11 is not oscillated by turning the ◐RV17 fully clockwise, set the ◐RV17 immediately before the lack of beam occurs by opening the lens iris 3 more stops than 2. In this case, the adjustments in Steps 5 and 6 are not required.

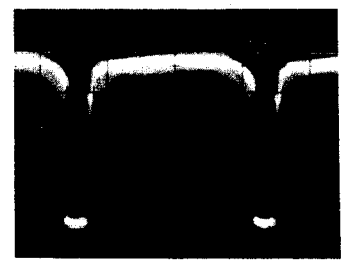
5. Stop oscillating by Adjusting the ◐RV21/VA-14 board.

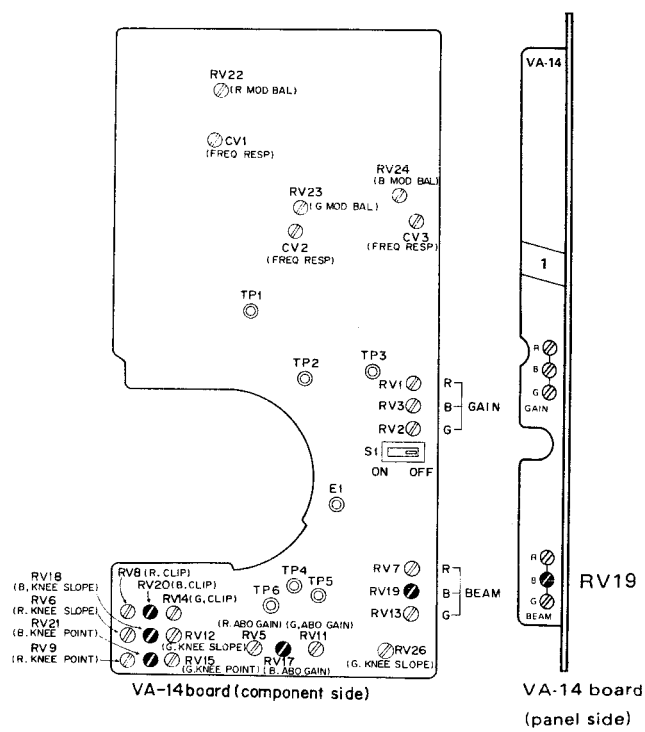


6. Open the lens iris 3 more stops from F value noted on Step 1 and adjust the ◐RV18/VA-14 board to avoid the lack of beam or oscillation.



7. Adjust the ◐RV20/VA14 board so that the waveform is clipped with same iris position in Step 5.





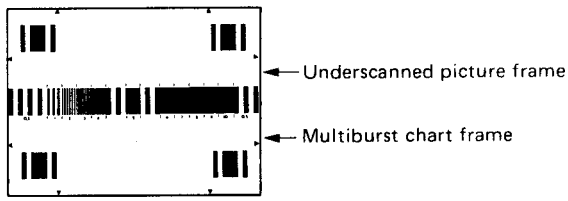
VA-14board (component side)

VA-14 board (panel side)

4-4-7. GREEN E. FOCUS Adjustment

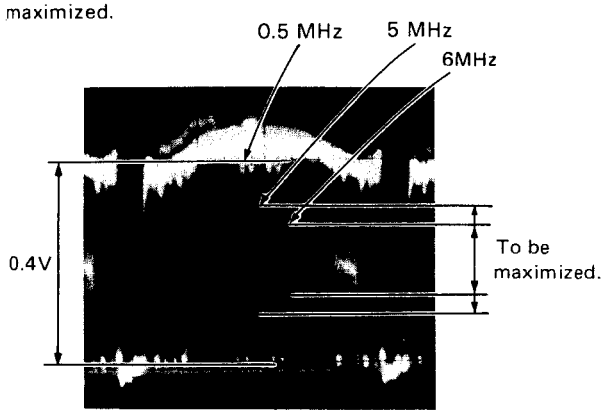
Object : Multiburst chart
Measuring equipment: Oscilloscope
To be extended : VA-14 board
Trigger: :TP4 (H.TRIG)/SG-63A board

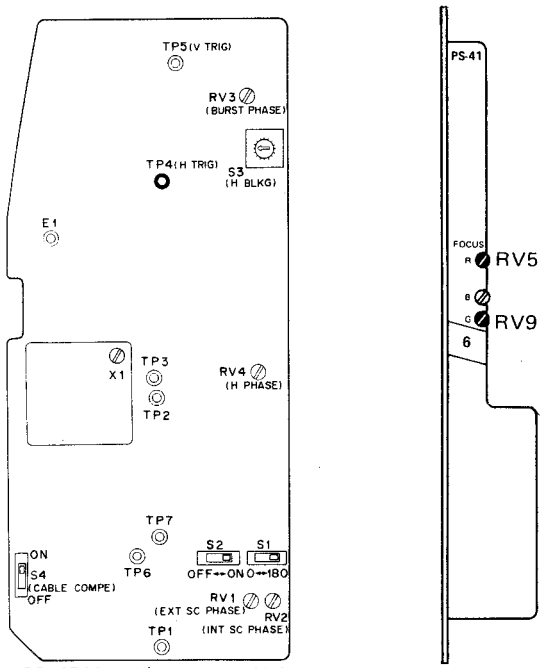
1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.



Monitor

2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Adjust the focus control so that the waveform signal amplitude at 5 MHz is maximized.
4. Adjust the ◐ RV9 [G. FOCUS] /PW-93 board so that the waveform signal amplitudes at both 5 MHz and 6 MHz are maximized.





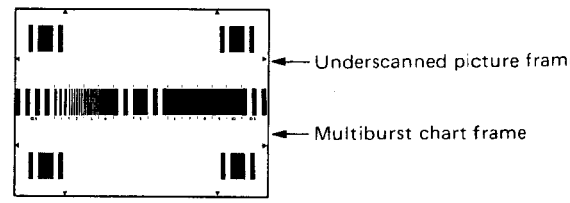
SG-63A board (component side)

PW-93 board (panel side)

4-4-8. RED E. FOCUS ADJUSTMENT

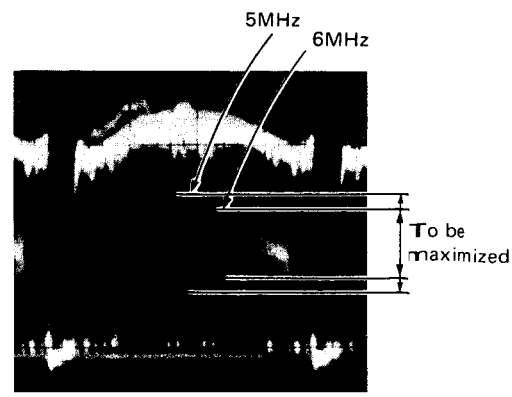
Object : Multiburst chart
Measuring equipment: Oscilloscope
To be extended : VA-14 board
Trigger :TP4 (H.TRIG)/SG-63A board

1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.



Monitor

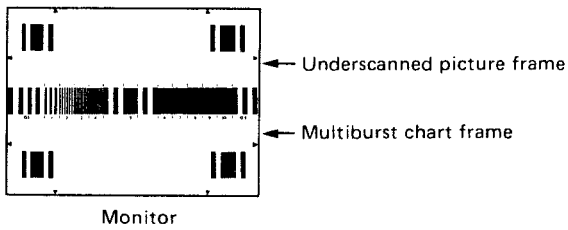
2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Adjust the focus control so that the waveform signal amplitude corresponding to 5 MHz at B7/extension board is maximized.
4. Adjust the ◐ RV5 [R. FOCUS] /PW-93 board so that the waveform signal amplitudes corresponding to both 5 MHz and 6 MHz at B7 are maximized.



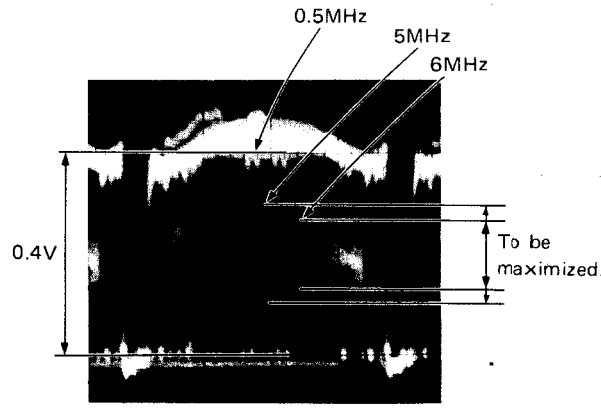
4-4-9. BLUE E. FOCUS Adjustment

Object : Multiburst chart
Measuring equipment: Oscilloscope
To be extended : VA-14 board
Trigger : TP4 (H. TRIG)/SG-63A board

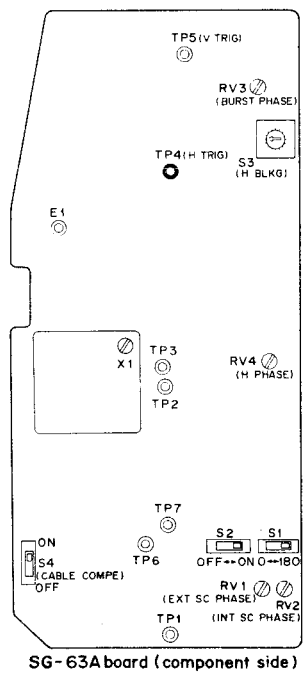
1. Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.



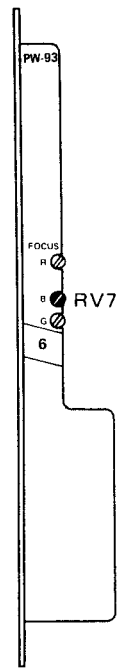
Monitor



2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Adjust the focus control so that the waveform signal amplitude corresponding to 5 MHz at A11/extension board is maximized.
4. Adjust the ⊘ RV7 [B. FOCUS] /PW-93 board so that the waveform signal amplitudes corresponding to both 5 MHz and 6 MHz at A11 are maximized.



SG-63A board (component side)



PW-93 board (panel side)

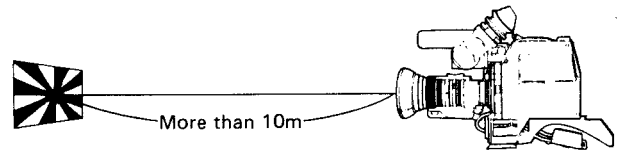
4-4-10. GREEN Back Focus Adjustment

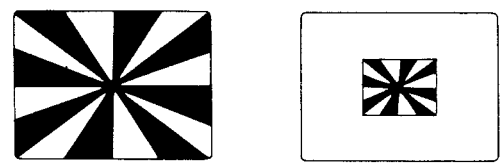
Notes: Never turn the back focus adjusting screw shown below except when replacing the pickup tube of G channel. Adjust the back focus of lens for back focus adjustment. However, when the pickup tube is replaced or the adjustment cannot be made on the lens side, set the lens back focus ring at the marked position so as to make the following adjustment.

Object : Siemens-star chart
Preparations : S8 [REG/ENC] → REG
S7 [G/−G] → G
S6 [R/B] → OFF
} /PR-75 board
Lens iris : Open

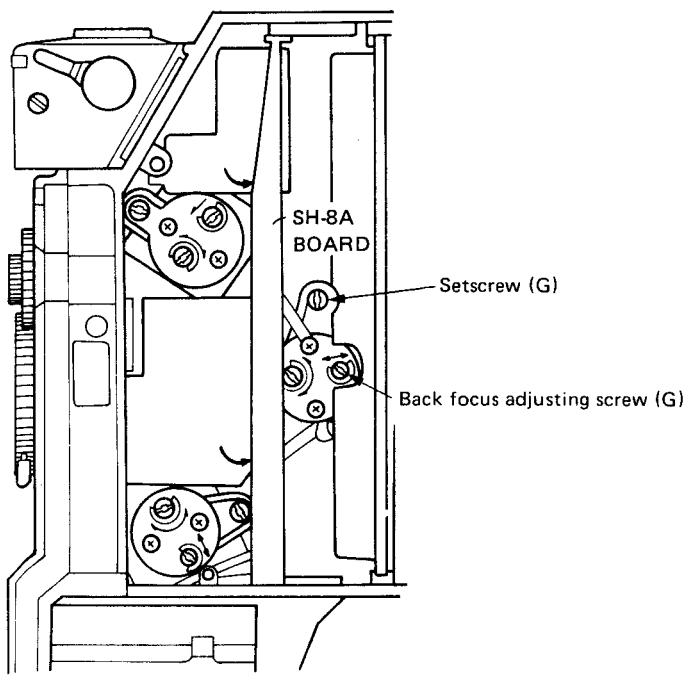
1. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Optically focus the image so as to obtain the maximum resolution.
2. Set the zoom control at WIDE so as to obtain the minimum multiplication factor. Do not optically focus the image at this time. Check whether the image is focused on the monitor while turning the zoom control from TELE to WIDE. If the image is not focused, properly set at back focus as follows:
3. Carefully loosen the setscrew shown below. When the zooming mechanism is set at WIDE, turn the back focus adjusting screw.
4. Tighten the setscrew after repeating Step 1 through Step 3 several times.

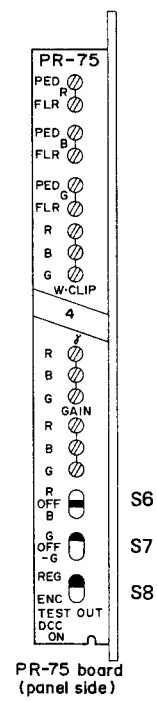
Note: When the zoom control is set at WIDE, be careful not to be exposed to strong light such as a fluorescent lamp.





Monitor screen





PR-75 board
(panel side)

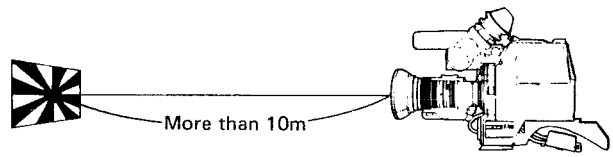
4-4-11. RED Back Focus Adjustment

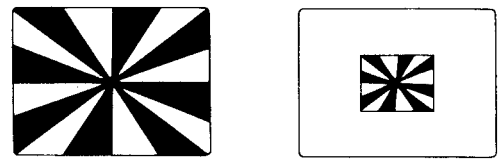
Note: Prior to this adjustment, confirm that the back focus in the green channel is set at a proper position. If not, first of all, make the back focus adjustment in the green channel.

Object : Siemens-star chart
Preparation : S8 [REG/ENC] /PR-75 board → REG
Lens iris : Open

1. S7 [G/—G] → G
   S6 [R/B] → OFF
   } /PR-75 board
2. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Do not touch the focus control after setting its position in this step during this adjustment.
3. S7 [G/—G] → OFF
   S6 [R/B] → R
   } /PR-75 board
4. Set the zoom control at TELE so as to obtain the maximum multiplication factor. If the image is not focused, carefully loosen the setscrew shown below and tighten the setscrew after the back focus adjusting screw is set at the optimum focus position.

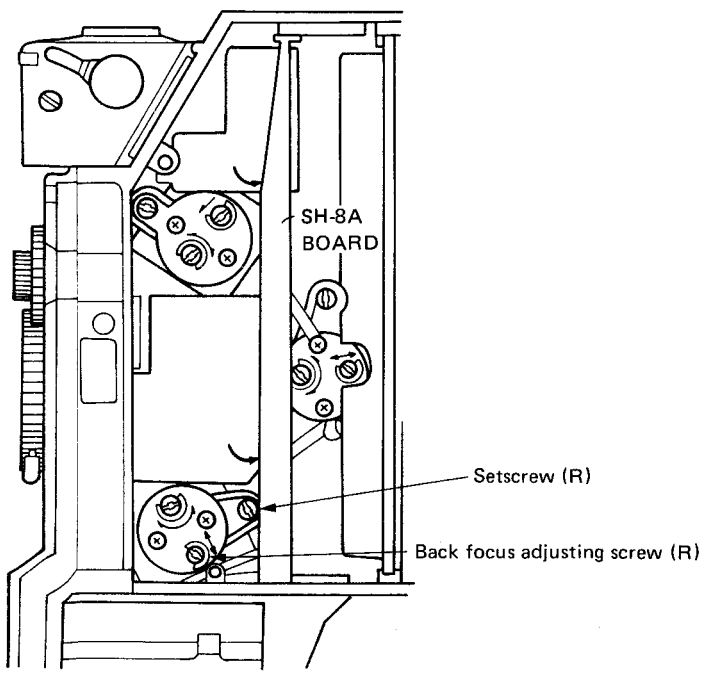
Note: When the zoom control is set at WIDE, be careful not to be exposed to strong light such as a fluorescent lamp.

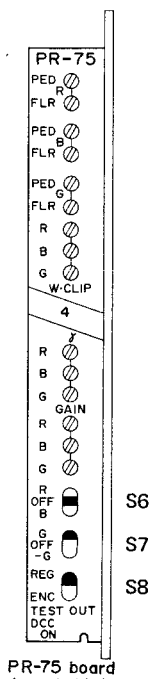




(TELE) (WIDE)

Monitor screen





PR-75 board
(panel side)

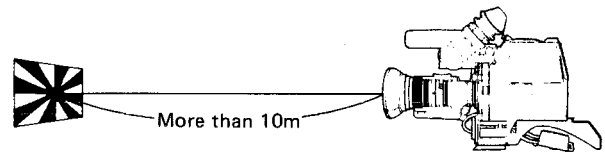
4-4-12. BLUE Back Focus Adjustment

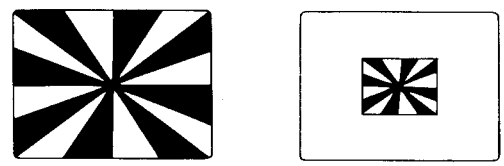
Note: Prior to this adjustment, confirm that the back focus in the green channel is set at a proper position. If not, first of all, make the back focus adjustment in the green channel.

Object : Siemens-Star chart
Preparation: : S8 [REG/ENC] /PR-75 board → REG
Lens iris : Open

1. S7 [G/−G] → G
   S6 [R/B] → OFF
   } /PR-75 board
2. Set the zoom control at TELE so as to obtain the maximum multiplication factor. Do not touch the focus control after setting its position in this step during this adjustment.
3. S7 [G/−G] → OFF
   S6 [R/B] → B
   } /PR-75 board
4. Set the zoom control at TELE so as to obtain the maximum multiplication factor. If the image is not focused, carefully loosen the setscrew shown below and tighten the setscrew after the back focus adjusting screw is set at the optimum focus position.

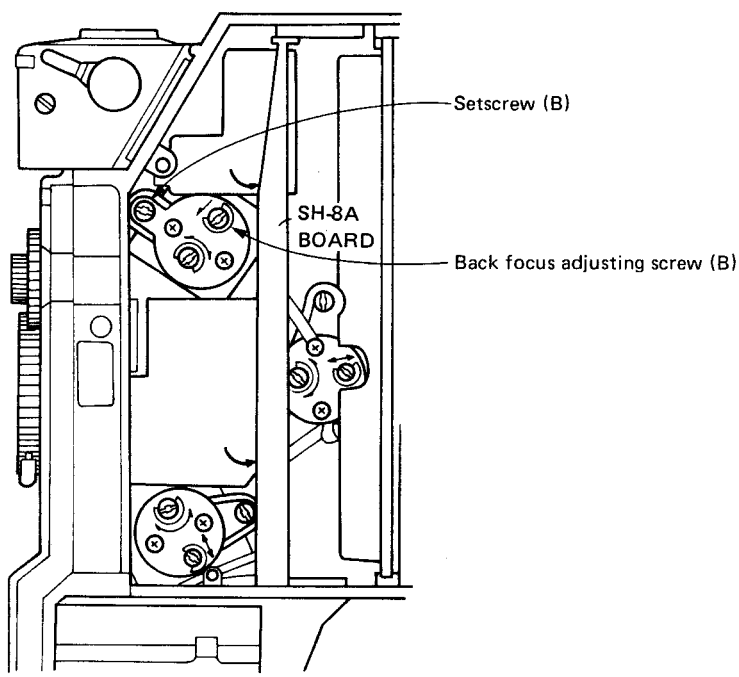
Note: When the zoom control is set at WIDE, be careful not to be exposed to strong light such as a fluorescent lamp.





(TELE) (WIDE)

Monitor screen



4-4-13. GREEN Rotation Adjustment

Note: After this adjustment, check the back focus adjustment in the green channel.

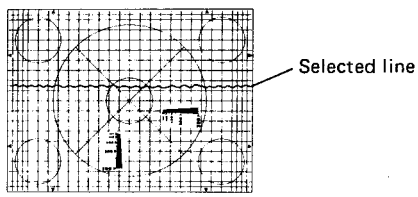
Object : Registration chart

Preparations: : S8 [REG/ENC] → REG
S7 [G/—G] → G
S6 [R/B] → OFF
} /PR-75 board

Set the tripod adaptor horizontally by using a level, and then mount the camera.

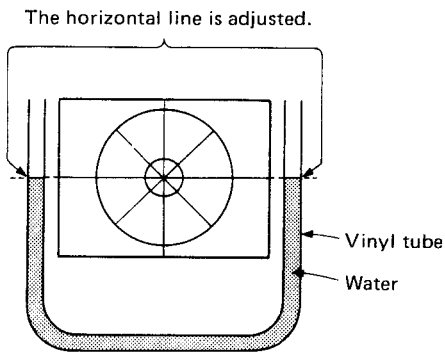
Set the registration chart at the horizontal position.

1. Select the lines by using a Waveform monitor and confirm that the horizontal line of the registration chart is in parallel with the selected line on the monitor.

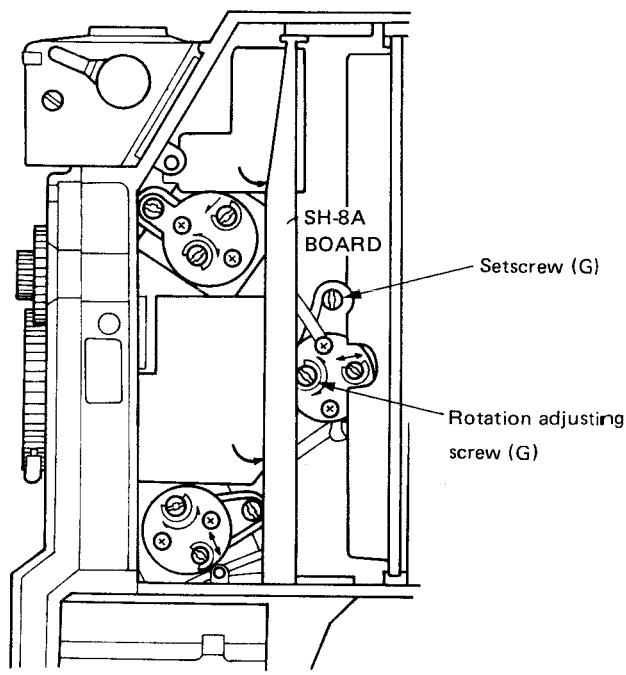


Monitor

- The use of a transparent vinyl tube containing water, instead of a level, makes it possible to set the registration chart correctly at the horizontal position.



2. If these 2 lines are not in parallel, make the following adjustments.
3. Carefully loosen the setscrew shown below:
   If the setscrew is loosened too much, back focus will tend to be inaccurate when rotation adjustment is done. Be careful not to loosen it too much.
   (turning angle: approx. 90° ~ 100°)
4. Adjust the positioning screw so that the selected line on the monitor is in parallel with the horizontal line of the registration chart.
5. Carefully tighten the setscrew.

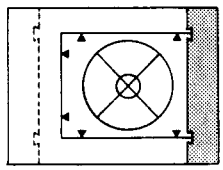


4-4-14. GREEN Centering and Picture Frame Size Adjustment

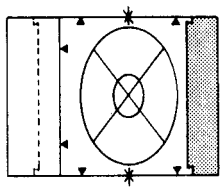
Note: Check the Rotation adjustment in the green channel before this adjustment.

Object : Registration chart
Lens iris : F16
To be extended : DF-17 board
Preparations : S8 [REG/ENC] → REG
S7 [G/−G] → G
S6 [R/B] → OFF
} /PR-75 board
The camera should be located right in front of the registration chart.

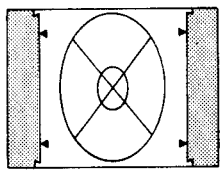
1. S1 [OVER SCAN]/DF-17 board → H/V
2. (V. CENTERING)
   Place the vertical frame at right edge of the registration chart over a photoconductive marker by panning or tilting the camera and using the zoom control.



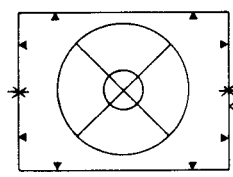
3. S1 [OVER SCAN]/DF-17 board → H
4. (V. SIZE)
   Place the vertical frame of the registration chart over the entire frame by using the ◐ RV3 and ◐ RV4/DF-17 board.

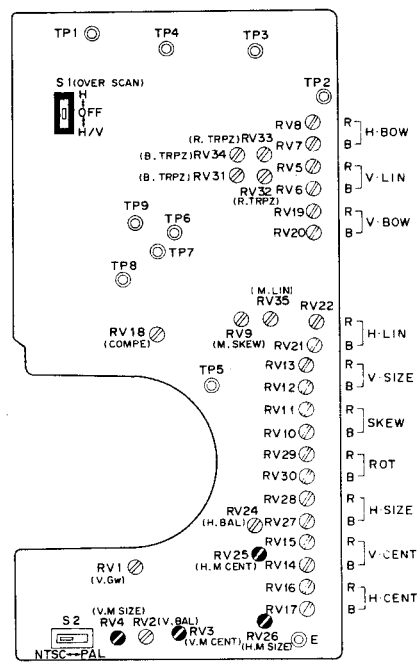


5. (H. CENTERING)
   Place the horizontal frame of the registration chart over a photoconductive marker by panning a camera and using the zoom control.
   After that, be careful not to move the camera.

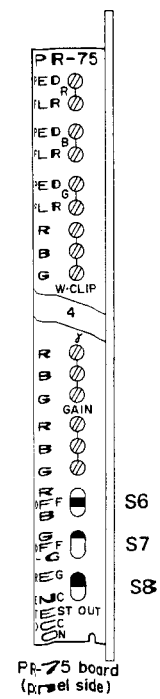


6. S1 [OVER SCAN]/DF-17 board → OFF
7. Place the vertical frame of the registration chart over the entire frame by using the zoom control.
8. (H. SIZE)
   Place the horizontal frame of the registration chart over the entire frame by using the ◐ RV25 and ◐ RV26/DF-17 board.





DF-17 board (component side)



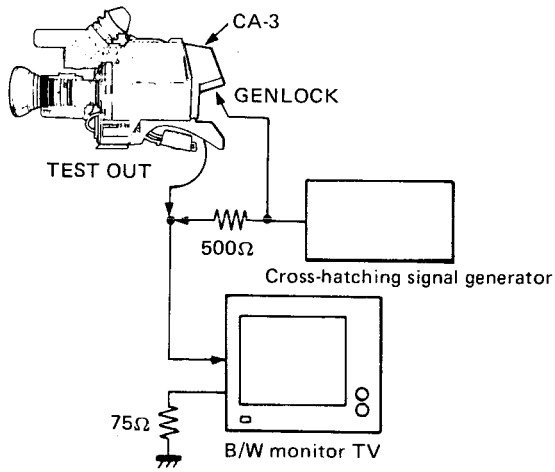
PR-75 board (parts side)

4-4-15. GREEN Linearity Adjustment

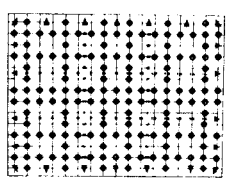
Object : Ball chart
Measuring equipment: Cross-hatching signal generator
Preparations : S8 [REG/ENC] → REG
S7 [G/−G] → G
S6 [R/B] → OFF
} /PR-75 board

- The camera should be located right in front of the pattern box.
- Use the pattern box in the AUTO mode.

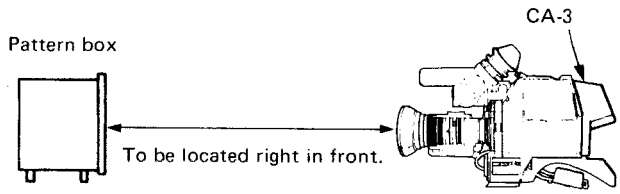
When CA-3 is used
(Connection)



1. Adjust the zoom control so that the ball chart frame touches the underscanned picture frame on the monitor.
2. Center the cross-hatching pattern at the center of the monitor screen by using ◐ RV4/SG-63A board.
3. Set the intersection points of orthogonal lines on a cross-hatching pattern at the centers of circles by using ◐ RV3, ◐RV4, ◐RV25, ◐RV26, ◐RV35, and ◐RV9/DF-17 board.
4. When the number (13) of horizontal lines in the cross-hatching signal is not the same as the number (14) of marks ○ in the ball chart, stretch the vertical size by using the ◐ RV4/DF-17 board. After the linearity adjustment is completed, place the ball chart over the entire frame, again, by using the ◐ RV4.

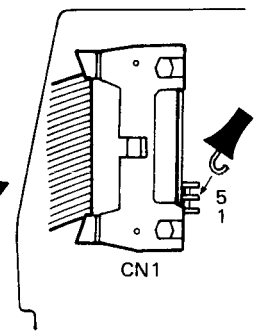


Monitor (Underscanning)

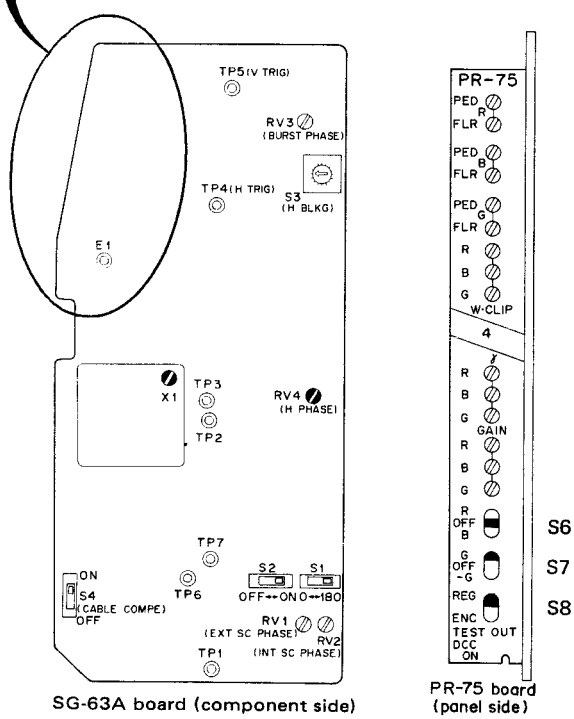


When CA-3 is not used

1. Supply the cross-hatching signal fed to the GENLOCK terminal of CA-3 to CN1 pin 5 on the SG-63A board.



2. The following is adjusted in the same manner as the use of CA-3.

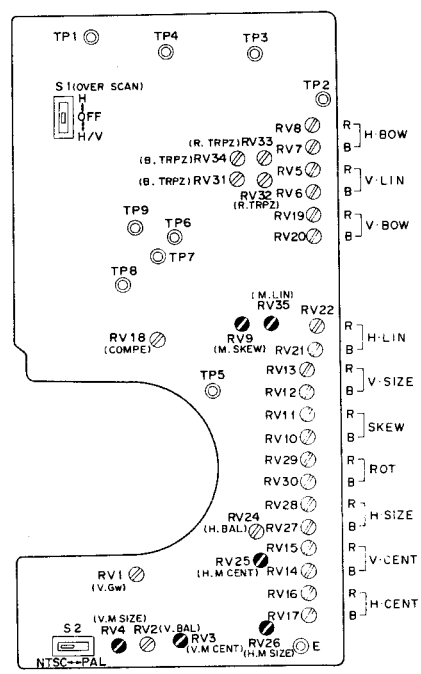


Note: After the linearity adjustment is completed, readjust the 4-4-14. GREEN Centering and Picture Frame Size Adjustment.

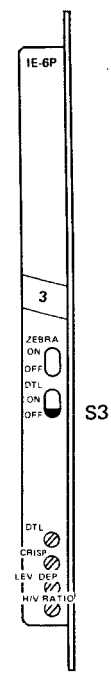
4-4-16. Registration Adjustment

1. Remarks on the color monitor
   Use the B/W monitor. If necessary, use the color monitor after convergence adjustment. Fully turn the chrominance level adjuster on the color monitor counterclockwise, or set the monitor to the B/W mode before starting the adjustment.

2. Preparations before registration adjustment
   - Set the lens iris at CLOSE after the power is turned on, and then warm up the camera for about 30 minutes before adjustment.
   - Adjust the zoom control so that the registration chart frame touches the underscanned picture frame on the monitor.
   - Use the pattern box in the AUTO mode.
   - Filter position → 1
   - S3 [DTL] /IE-6P board → OFF
   - Set the S8 [REG/ENC] /PR-75 board at ENC and adjust the iris control so that the white level of TEST OUT is 70 IRE.
   - S8 [REG/ENC] /PR-75 board → REG
   - To be extended: DF-17 board
   - AUTO CENT switch → PRESET



DF-17 board (component side)



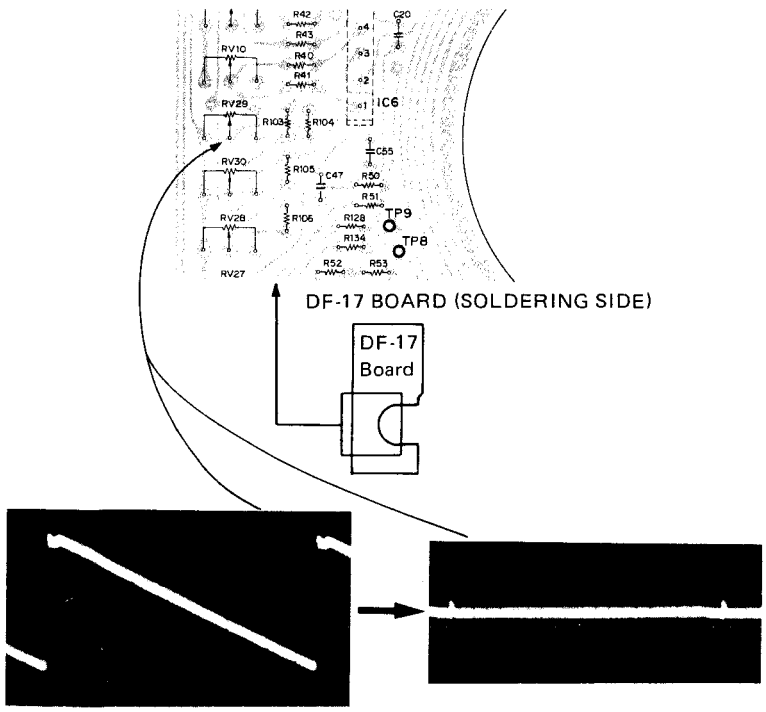
IE-6P board (panel side)

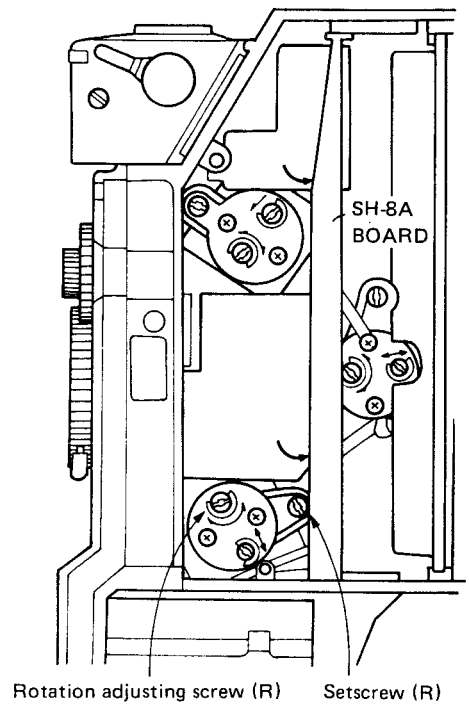
4-4-17. RED Rotation Adjustment

Note: The RED Rotation adjustment exerts influence on the 4-4-11. RED Back FOCUS Adjustment, so be sure to check the RED back focus adjustment after the Rotation adjustment is completed.

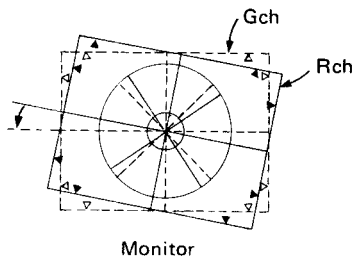
Object : Registration chart
Measuring equipment: Oscilloscope
To be extended : DF-17 board
Trigger : TP4 (H. TRIG)/SG-63A board

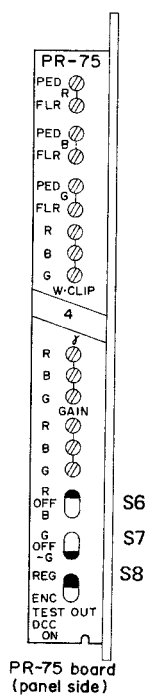
1. S7 [G/−G] →−G
   S6 [R/B] →R
   } /PR-75 board
2. Check whether 2 horizontal lines at the center of the R and −G picture are in parallel or overlapped.
   If these 2 lines are not in parallel or overlapped, make the following adjustments.
3. Connect the probe of an oscilloscope to the center of the ◐RV29 [R. ROT] /DF-17 board (refer to the figure below) and adjust the ◐RV29 [R. ROT] so that the corrected waveform disappears on the monitor.

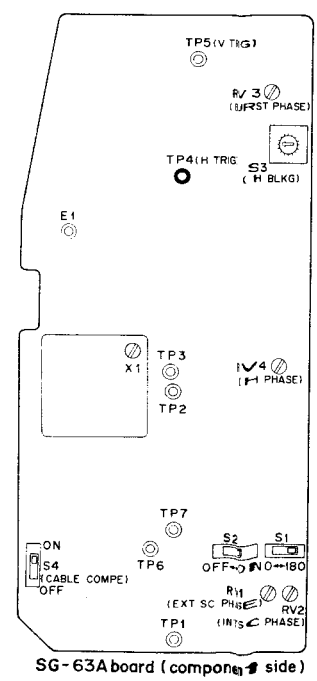




4. Carefully loosen the setscrew shown above.
   Adjust the positioning screw so that the horizontal line at the center of the R picture is overlapped or in parallel with the picture in the green channel.
5. Carefully tighten the setscrew.





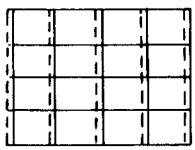


4-4-18. RED Registration Adjustment

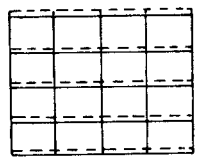
Note: The following ◐ RVs exert influence one another, so the adjustment should be repeatedly made.

Adjustment : When the picture in the red channel is diverged, as shown below, make adjustment by using the respective ◐ RVs.

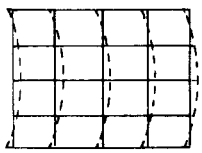
◐ RV16 (H. CENT)



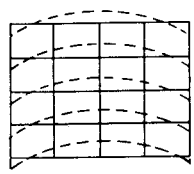
◐ RV15 (V. CENT)



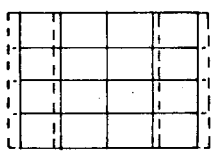
◐ RV8 (H. BOW)



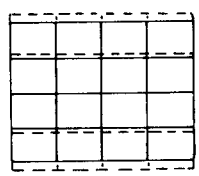
◐ RV19 (V. BOW)



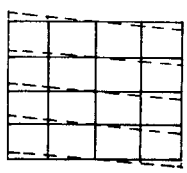
◐ RV28 (H. SIZE)



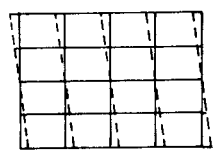
◐ RV13 (V. SIZE)



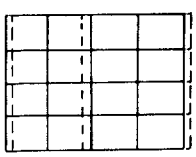
◐ RV29 (ROT)



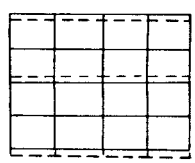
◐ RV11 (SKEW)



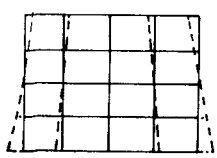
◐ RV22 (H. LIN)



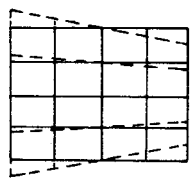
◐ RV5 (V. LIN)

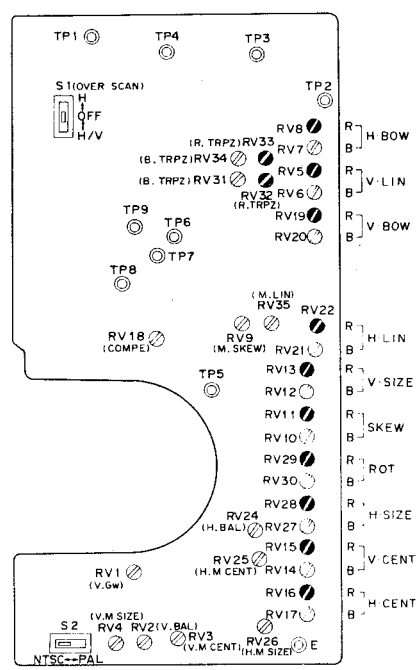


◐ RV33 (H. TRPZ)

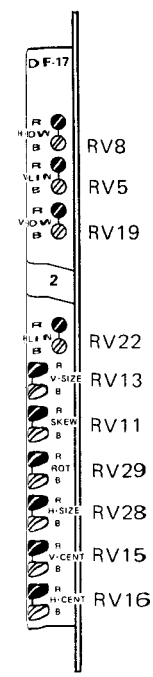


◐ RV32 (V. TRPZ)





DF-17 board (component side)



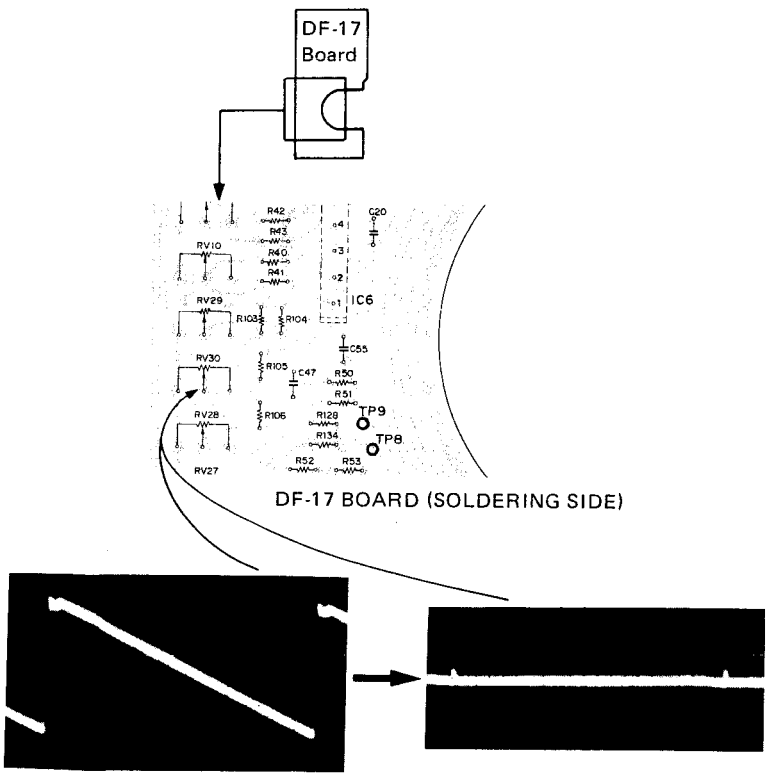
DF-17 board (panel side)

4-4-19. BLUE Rotation Adjustment

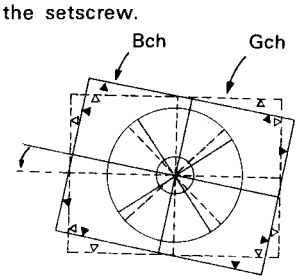
Note: The BLUE Rotation adjustment exerts influence on the 4-4-12. BLUE Back FOCUS Adjustment, so be sure to check the BLUE back focus adjustment after the Rotation adjustment is completed.

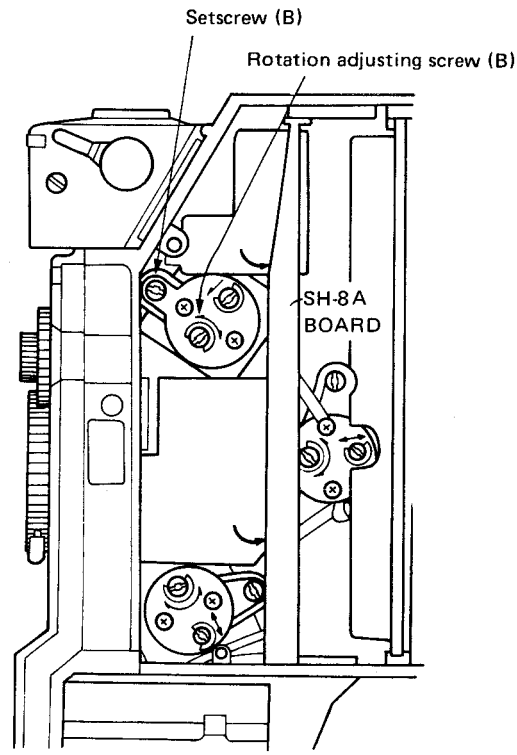
Object : Registration chart
Measuring equipment: Oscilloscope
To be extended : DF-17 board
Trigger : TP4 (H. TRIG)/SG-63A board

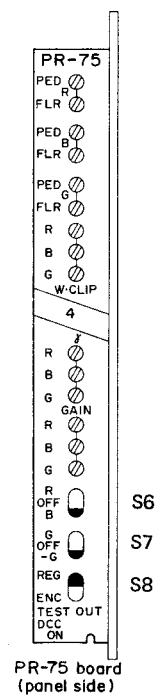
1. S7 [G/−G] →−G
   S6 [R/B] → B
   } /PR-75 board
2. Check whether 2 horizontal lines at the center of the B and −G picture are in parallel or overlapped.
   If these 2 lines are not in parallel or overlapped, make the following adjustments.
3. Connect the probe of an oscilloscope to the center of the ⊘RV30 [B. ROT]/DF-17 board (refer to the figure below) and adjust the ⊘RV30 [B. ROT] so that the corrected waveform disappears on the monitor.

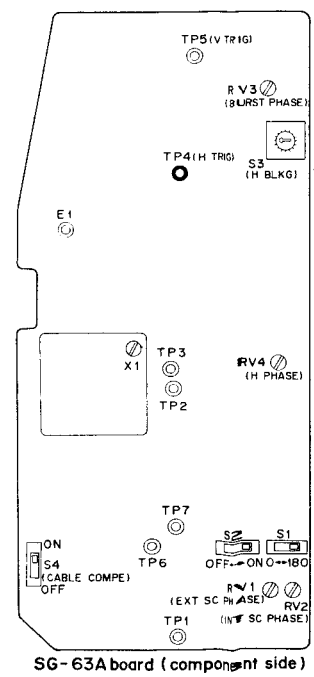


4. Carefully loosen the setscrew shown above.
   Adjust the positioning screw so that the horizontal line at the center of the B picture is overlapped or in parallel with the picture in the green channel.
5. Carefully tighten the setscrew.







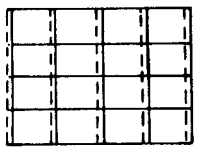


4-4-20. BLUE Registration Adjustment

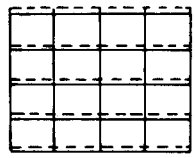
Note: The following ◐ RVs exert influence one another, so the adjustment should be repeatedly made.

Adjustment : When the picture in the blue channel is diverged, as shown below, make adjustment by using the respective ◐ RVs.

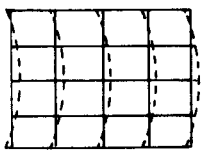
◐ RV17 (H. CENT)



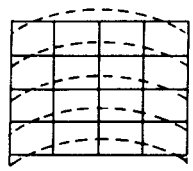
◐ RV14 (V. CENT)



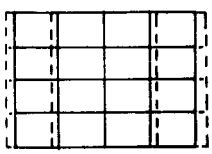
◐ RV7 (H. BOW)



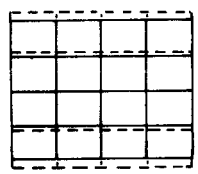
◐ RV20 (V. BOW)



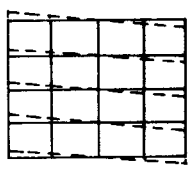
◐ RV27 (H. SIZE)



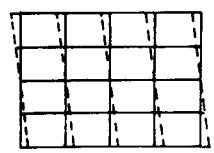
◐ RV12 (V. SIZE)



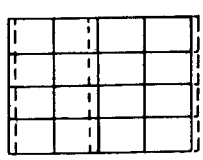
◐ RV30 (ROT)



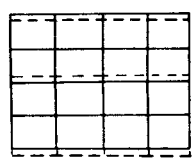
◐ RV10 (SKEW)



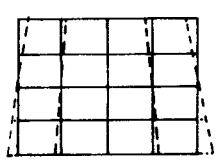
◐ RV21 (H. LIN)



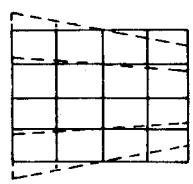
◐ RV6 (V. LIN)

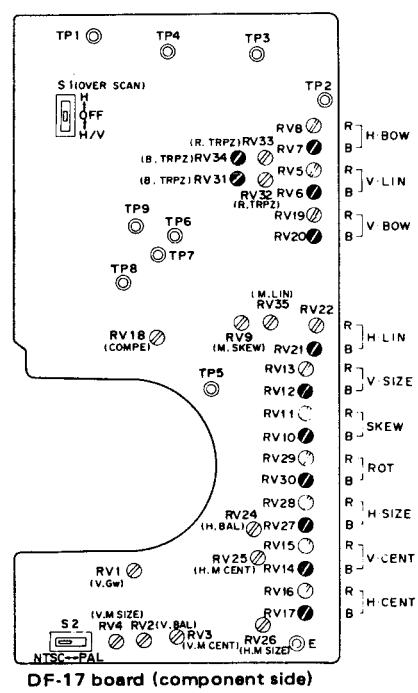


◐ RV34 (H. TRPZ)

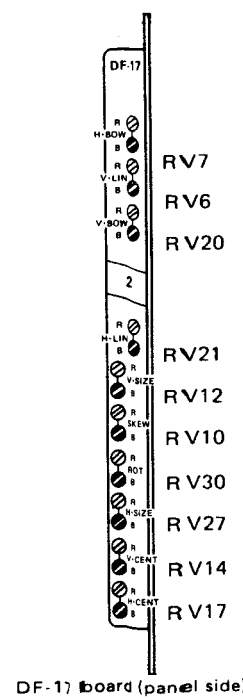


◐ RV31 (V. TRPZ)





DF-17 board (component side)

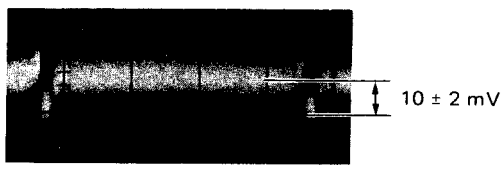


DF-17 board (panel side)

4-5. VIDEO SIGNAL ADJUSTMENT

4-5-1. Bias Light Adjustment

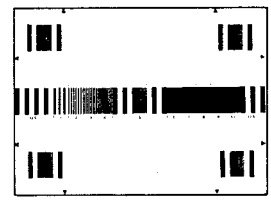
Lens	: Close
Measuring equipment	: Oscilloscope
To be extended	: VA-14 board
Preparations	: S2 [BIAS LIGHT]/SH-8A board → ON S1 [TEST]/SH-8A board → OFF
To be measured	: B9 (⏚ GND)/Extension board
Trigger	: TP4 (H. TRIG)/SG-63A board
To be adjusted	: ◐ RV13/SH-8A board
Specification	: 10 ± 2mV



4-5-2. GREEN PA Frequency Response at high Frequencies Adjustment

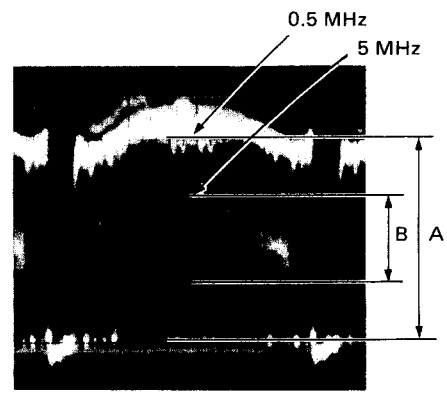
Object	: Multiburst chart
Measuring equipment	: Oscilloscope
Preparation	: Remove the shielding case on the PA-37 board
Trigger	: TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.

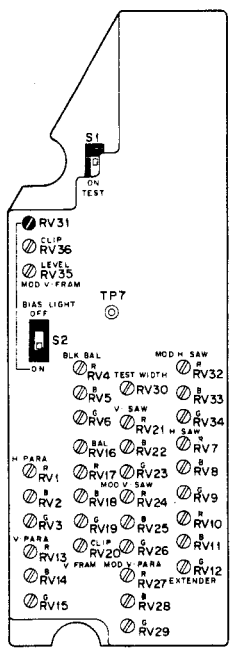


Monitor (Underscanning)

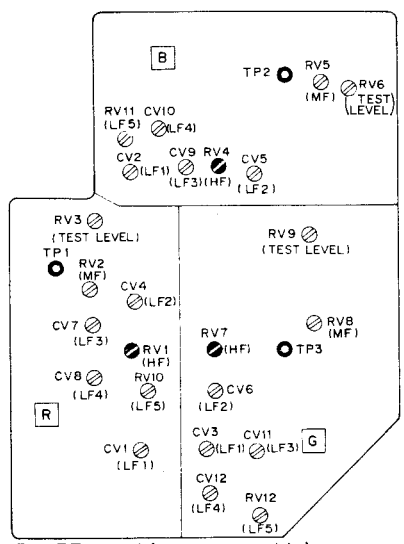
2. Adjust the iris control so that the video level corresponding to the 0.5 MHz at TP3/PA-37 board is 0.4 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Repeat Step 2.
5. Adjust the ◐ RV7 [HF]/PA-37 board so that the amplitude level at 5 MHz is 0.2 Vp-p.



A = 0.4 Vp-p
B = 0.2 Vp-p



SH-8A board(component side)

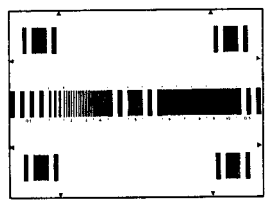


PA-37 board (component side)

4-5-3. RED PA Frequency Response at high Frequencies Adjustment

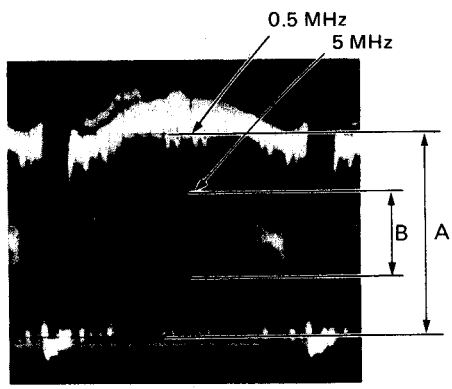
Object : Multiburst chart
Measuring equipment : Osicllloscope
Preparation : Remove the shielding case on the PA-37 board.
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.



Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to the 0.5 MHz at TP1/PA-37 board is 0.2 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Repeat Step 2.
5. Adjust the ◐ RV1 [HF]/PA-37 board so that the amplitude level at 5 MHz is 0.1 Vp-p.

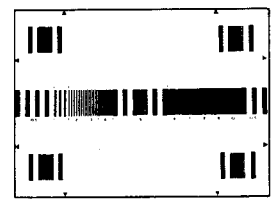


A = 0.2 Vp-p
B = 0.1 Vp-p

4-5-4. BLUE PA Frequency Response at high Frequencies Adjustment

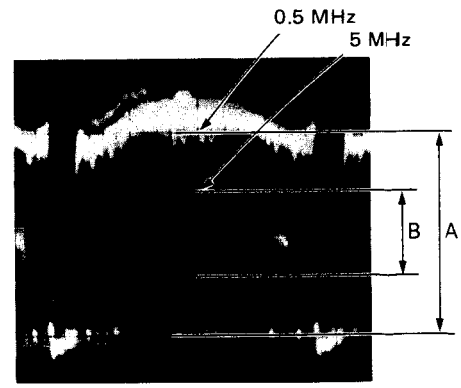
Object : Multiburst chart
Measuring equipment : Oscilloscope
Preparation : Remove the shielding case on the PA-37 board.
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.



Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to the 0.5 MHz at TP2/PA-37 board is 0.2 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Repeat Step 2.
5. Adjust the ◐ RV4 [HF]/PA-37 board so that the amplitude level at 5 MHz is 0.1 Vp-p.



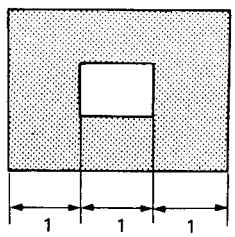
A = 0.2 Vp-p
B = 0.1 Vp-p

4-5-5. GREEN PA Frequency Response at Low and Medium Frequencies Adjustment

Object : White window chart
Equipment : Oscilloscope
Preparations : S8 [REC/ENC] → REG
S7 [G/—G] → G
S6 [R/B] → OFF
} /PR-75 board

1. Shoot the white window chart as shown below.

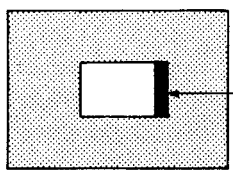
Monitor (Underscanning)



2. Adjust the iris control so that the video level at the TP3/PA-37 board is 0.4 Vp-p.
3. Adj. point: CV3 (LF1)
CV6 (LF2)
CV11 (LF3)
CV12 (LF4)
RV12 (LF5)
RV8 (MF)
} /PA-37 board

Adjust: White or black streaking goes not appear on the monitor.

Monitor



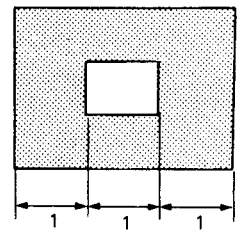
White or black streaking disappearing.

4-5-6. RED PA Frequency Response at Low and Medium Frequencies Adjustment

Object : White window chart
Equipment : Oscilloscope
Preparations : S8 [REG/ENC] → REG
S7 [G/—G] → OFF
S6 [R/B] → R
} /PR-75 board

1. Shoot the white window chart as shown below.

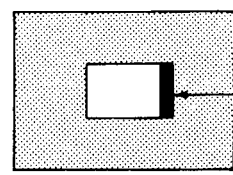
Monitor (Underscanning)



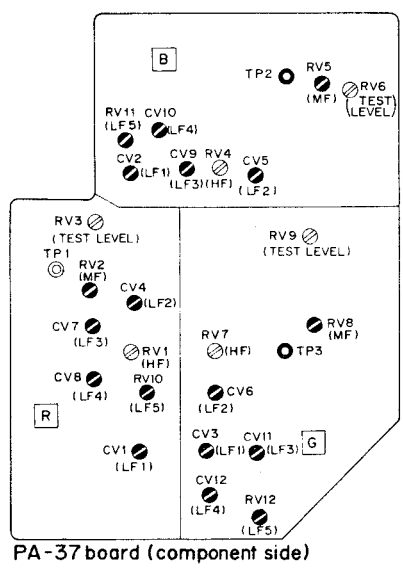
2. Adjust the iris control so that the video level at the TP3/PA-37 board is 0.4 Vp-p.
3. Adj. point: CV1 (LF1)
CV4 (LF2)
CV7 (LF3)
CV8 (LF4)
RV10 (LF5)
RV2 (MF)
} /PA-37 board

Adjust: White or black streaking goes not appear on the monitor.

Monitor



White or black streaking disappearing.



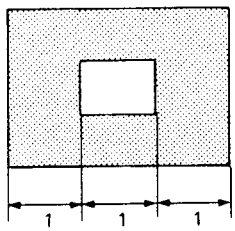
PA-37 board (component side)

4-5-7. BLUE PA Frequency Response at Low and Medium Frequencies Adjustment

Object : White window chart
Equipment : Oscilloscope
Preparation : S8 [REG/ENC] → REG
S7 [G/—G] → OFF
S6 [R/B] → B
} PR-75 board

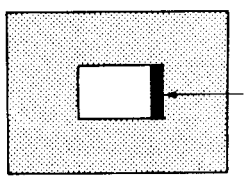
1. Shoot the white window chart as shown below.

Monitor (Underscanning)

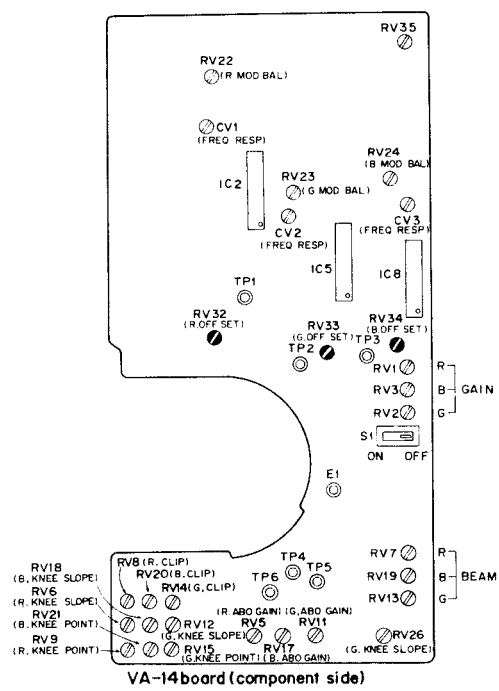


2. Adjust the iris control so that the video level the TP3/PA-37 board is 0.4 Vp-p.
3. Adj. point: ◐ CV2 (LF1)
◐ CV5 (LF2)
◐ CV9 (LF3)
◐ CV10 (LF4)
◐ RV11 (LF5)
◐ RV5 (MF)
} /PA-37 board

Adjust: White and black streaking goes not appear on the monitor.



Monitor



VA-14 board (component side)

BVP-3A(UC) : Seria No. 10501 and higher
BVP-3AP(EK) : Serial No. 21001 and higher

DC-OFF SET Adjustment

Lens : Close
Equipment : Oscilloscope (DC mode)
To be extended : VA-14 Board
Trigger : TP4 (H. TRIG)/SG-63A Board

1. Adjust the ◐ RV33 [G OFF SET] /VA-14 board so that does not change the DC level of the IC5, 1 Pin/VA-14 board when select the GAIN SW to 0 dB and 18 dB.

2. Adjust the ◐ RV32 [R OFF SET] /VA-14 board so that does not change the DC level of the IC2, 1 Pin/VA-14 board when select the GAIN SW to 0 dB and 18 dB.

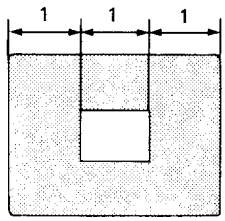
3. Adjust the ◐ RV34 [B OFF SET] /VA-14 board so that does not change the DC level of the IC8, 1 Pin/VA-14 board when select the GAIN SW to 0 dB and 18 dB.

Note: Aftter this adjustment is completed, rest the GAIN Switch to 0 dB.

4-5-8. VA Gain Adjustment

Note: 1. Repeatly adjust the 4-5-8. VA gain adjustment ot the 4-5-10. Dynamic range adjustment to obtained the specification.
2. For the VA gain adjustment, the reflection type chart is highly recommended, and make sure that the white area has 3200°K of color temperature. if the pattern box is used for this adjustment, well maintained pattern box should be used.

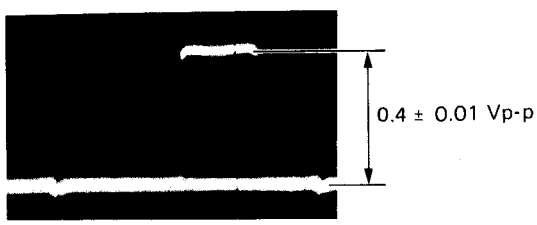
Object : White window chart (3200°K)



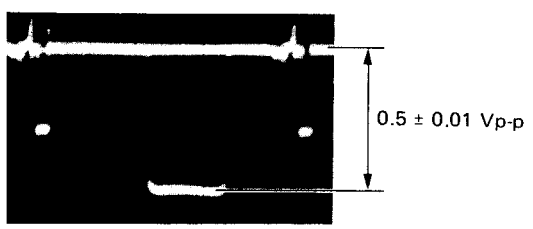
Monitor

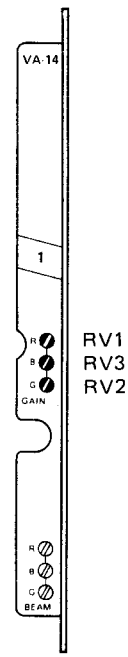
Measuring equipment : Oscilloscope
To be extended : VA-14 board
Preparation : Remove the shielding case on the PA-37 board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the iris control so that the video level at TP3/PA-37 board is 0.4 ± 0.01 Vp-p.

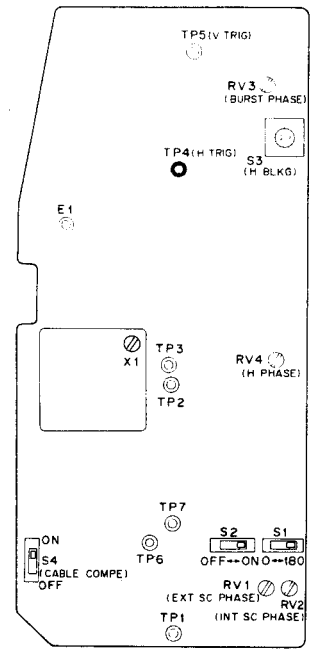


2. ◐ RV35/VA-14 board → mechanical center.
3. Adjust the ◐ RV2 [G. GAIN]/VA-14 board so that the video level at B5/extension board is 0.5 ± 0.01 Vp-p.
4. Adjust the ◐ RV1 [R. GAIN]/VA-14 board so that the video level at B3/extension board is 0.5 ± 0.01 Vp-p.
5. Adjust the ◐ RV3 [B. GAIN]/VA-14 board so that the video level at B4/extension board is 0.5 ± 0.01 Vp-p.





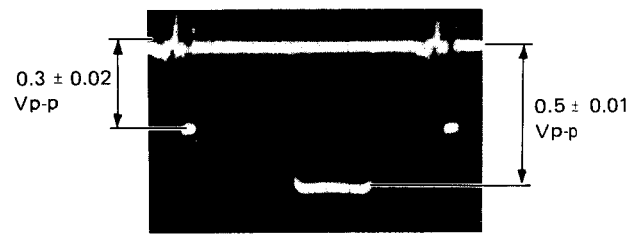
VA-14 board
(panel side)



SG-63A board (component side)

4-5-9. AGC Pulse Level Adjustment

1. Adjust the ◐ RV-36 [BF GAIN] /VA-14 board so that the BF level at B5/extension board is 0.5 ± 0.01 Vp-p.

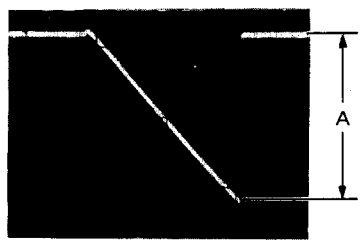


4-5-10. Test Signal Waveform Adjustment

Note: Be sure to carry out 4-5-8. VA Gain Adjustment before this adjustment.

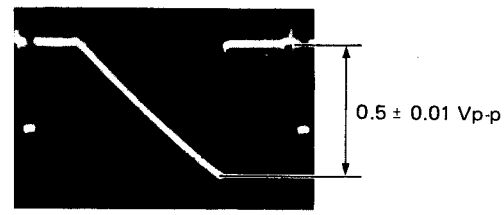
1) Test saw width adjustment

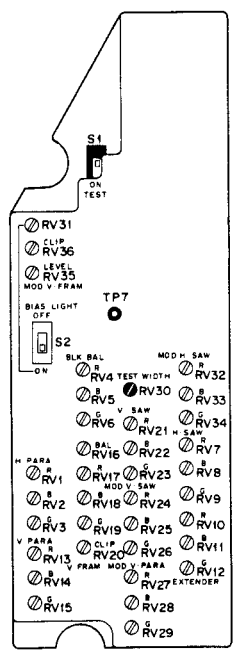
Measuring equipment : Oscilloscope
Preparation : S1 [TEST]/SH-8A board → ON
To be measured : TP7/SH-8A board
To be adjusted : ◐ RV30/SH-8A board
Trigger : TP4 (H. TRIG)/SG-63A board
Specification : A = 1.5 ± 0.1 Vp-p



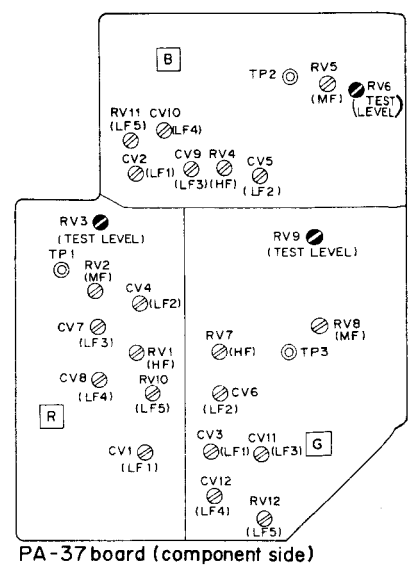
2) Test saw level adjustment

Measuring equipment : Oscilloscope
To be extended : VA-14 board
Preparation : S1 [TEST]/SH-8A board → ON
To be measured : A5 (G), A3 (R), A4 (B) } /extension board
Trigger : TP4 (H. TRIG)/SG-63A board
To be adjusted : ◐ RV9 (G), ◐ RV3 (R), ◐ RV6 (B) } /PA-37 board
Specification : 0.5 ± 0.01 Vp-p





SH-8A board(component side)



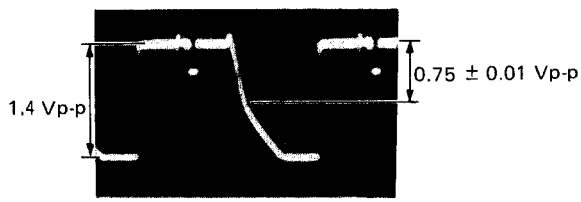
PA-37 board (component side)

4-5-11. Dynamic Range Adjustment

Note: Be sure to carry out 4-5-9. TEST Signal waveform Adjustment before this adjustment.

Measuring equipment : Oscilloscope
To be extended : VA-14 board
Preparations : S1 [TEST]/SH-8A board → ON
Trigger : TP4 (H. TRIG)/SG-63A board

1. GAIN SWITCH → 18 dB
2. Adjust the ◐ RV-35/VA-14 board so that the knee point at test signal waveform is 0.75 ± 0.01 Vp-p. Be sure that the peak level on the test waveform signal is 1.4 Vp-p.



3. Be sure that the peak level of the test signal waveform at the B3/extension board is 1.4 Vp-p.
4. Be sure that the peak level of the test signal waveform at the B4/extension board is 1.4 Vp-p.

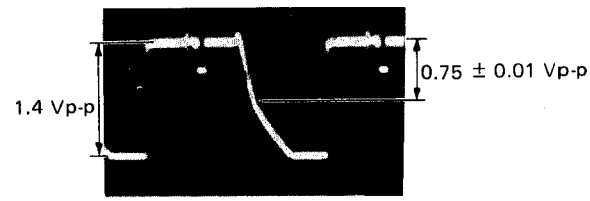
Note: This adjustment, 4-5-8. VA Gain adjustment and 4-5-9. TEST Signal Waveform Adjustment affect each other, so repeat adjustments until their specifications are satisfied.

4-5-12. IE. Clip Level Adjustment

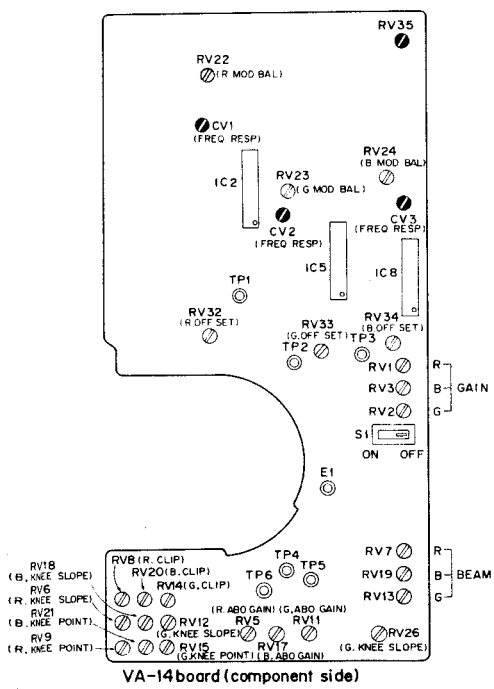
Note: Be sure to carry out 4-5-10. Dynamic Range Adjustment before this adjustment.

Measuring equipment : Oscilloscope
To be extended : IE-6P board
Preparations : S1 [TEST]/SH-8A board → ON
Trigger : TP4 (H. TRIG)/SG-63A board

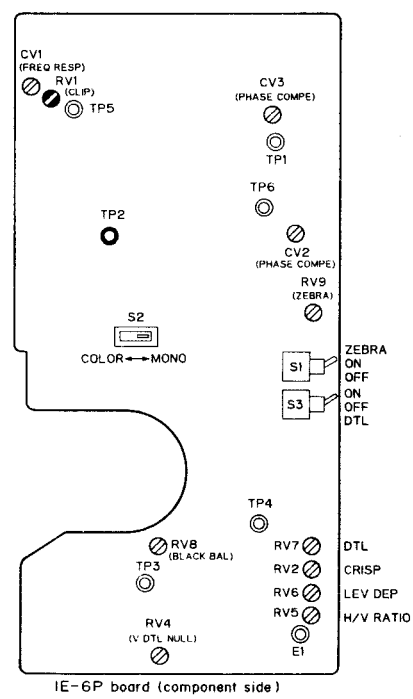
1. GAIN SWITCH → 18 dB
2. Adjust the ◐ RV1/IE-6P board so that the peak level on test signal waveform at TP2/IE-6P is 1.4 ± 0.01 Vp-p.



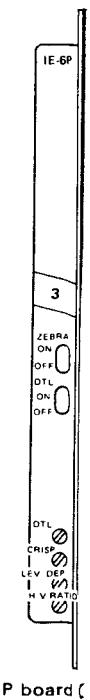
Note: After this adjustments is completed, set GAIN switch at 0 dB and S1 [TEST]/SH-8A board at OFF.



VA-14 board (component side)



IE-6P board (component side)

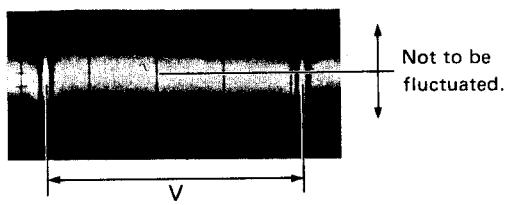


IE-6P board (panel side)

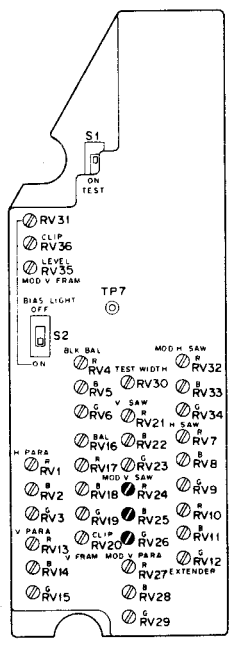
4-5-13. Modulator Balance Adjustment

Lens : Close
Measuring equipment : Oscilloscope
To be extended : VA-14 board
Trigger : TP5 (V. TRIG)/SG-63A board

1. Adjust the ◐ RV23/VA-14 board so that the video level at B5/extension board might not change when the ◐ RV26 G.MOD V.SAW/SH-8A board is turned clockwise or counterclockwise.
2. Adjust the ◐ RV22/VA-14 board so that the video level at B3/extension board might not change when the ◐ RV24 R.MOD V.SAW/SH-8A board is turned clockwise or counterclockwise.
3. Adjust the ◐ RV24/VA-14 board so that the video level at B4/extension board might not change when the ◐ RV25 B.MOD V.SAW/SH-8A board is turned clockwise or counterclockwise.



Note: After this adjustment is completed, be sure to carry out 4-5-21. White Shading Adjustment.

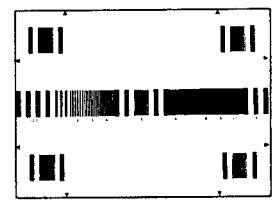


SH-8A board(component side)

4-5-14. VA Frequency Response Adjustment

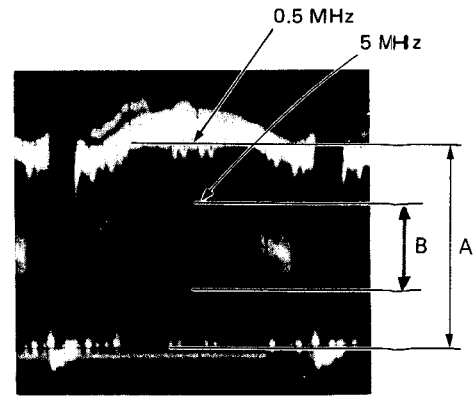
Object : Multiburst chart
Measuring equipment : Oscilloscope
To be extended : VA-14 board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.



Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to 0.5 MHz at B9/extension board is 0.4 Vp-p.
3. Maximize the waveform signal amplitude at 5 MHz by focusing of the lens.
4. Adjust the ◐ CV2/VA-14 board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at B5 (output)/extension board is the same as that at B9 (input)/extension board.
5. Adjust the ◐ CV1/VA-14 board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at B3 (output)/extension board is the same as that at B7 (input)/extension board.
6. Adjust the ◐ CV3/VA-14 board so that the ratio between the amplitude of 5 MHz and 0.5 Mhz at B4 (output)/extension board is the same as that at A11 (input)/extension board.



$\left(\frac{B}{A}\right)_{output} = \left(\frac{B}{A}\right)_{input}$

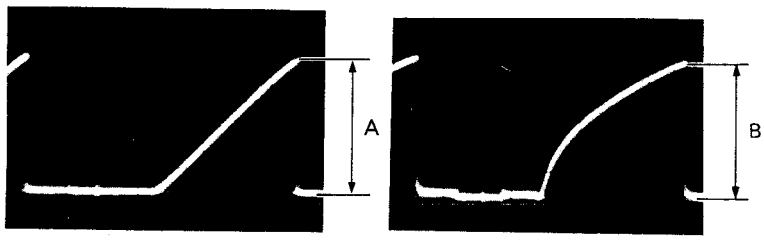
4-5-15. Gamma Balance Adjustment

Note: Be sure to carry out 4-5-9. TEST Signal Waveform Adjustment befor this adjustment.

Measuring equipment : Oscilloscope
To be extended : PR-75 board
Preparations : S1 [TEST] /SH-8A board → ON
S1 [WHT CLIP] /PR-75 board → OFF
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the ◐ RV11/PR-75 board so that the white peak level of the test signal waveform at B9/extension board does not change while setting S4 [G.γ] /PR-75 board at ON or OFF.
2. Adjust the ◐ RV1/PR-75 board so that the white peak level of the test signal waveform at B8/extension board does not change while setting S3 [R.γ] /PR-75 board at ON or OFF.
3. Adjust the ◐ RV21/PR-75 board so that the white peak level of the test signal waveform at B11/extension board does not change while setting S5 [B.γ] /PR-75 board at ON or OFF.

γ · SW : OFF γ · SW : ON

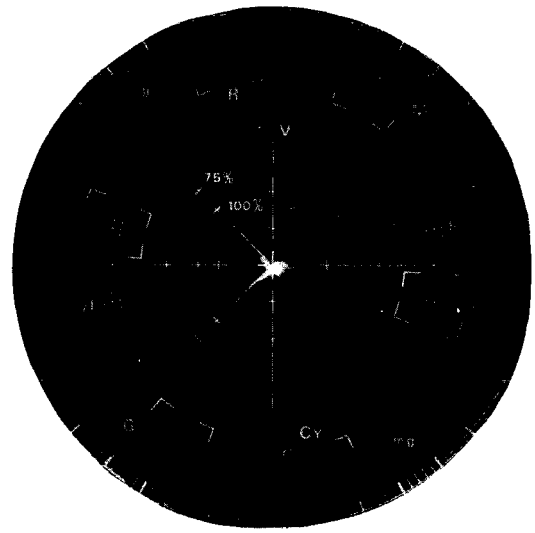


A = B

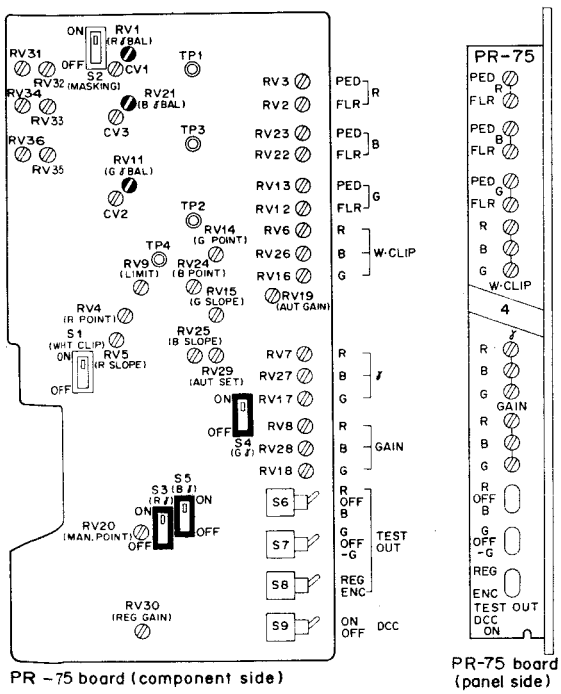
4-5-16. Carrier Balance Adjustment

Measuring equipment : Vectorscope (MAX GAIN)
To be extended : EN-33A board
Preparation : OUTPUT switch → BARS
S3 [BARS] /EN-33A board → EBU

1. Center the black beam spot on the vectorscope using both ◐ RV13 [V] and ◐ RV17 [U] /EN-33A board.

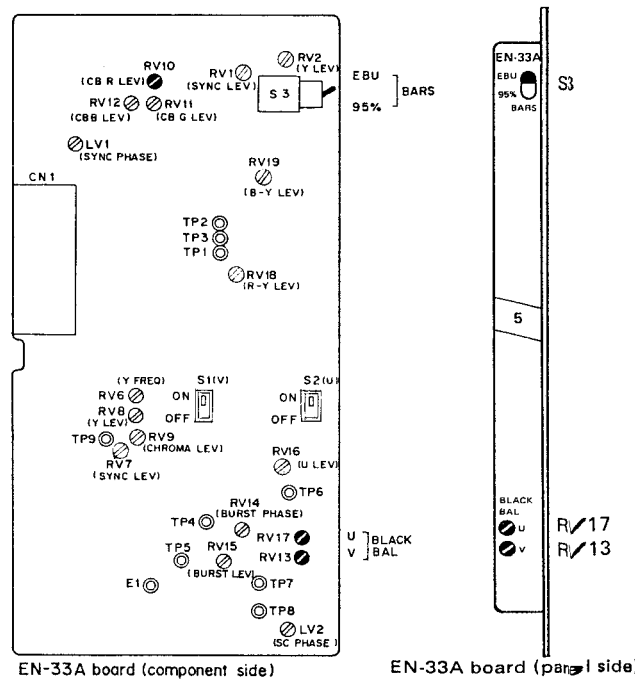


Note: When black spots cannot be discriminated due to several beam spots, turn the ◐ RV10/EN-33A board. The black beam spots cannot be shifted.
In this case, after adjustment is completed, perform the "Color Bar Adjustment in the encoder system adjustment"



PR-75 board (component side)

PR-75 board (panel side)

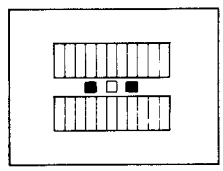


EN-33A board (component side)

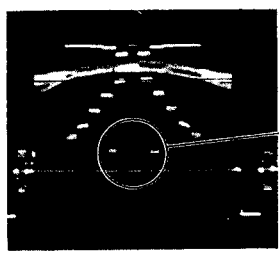
EN-33A board (panel side)

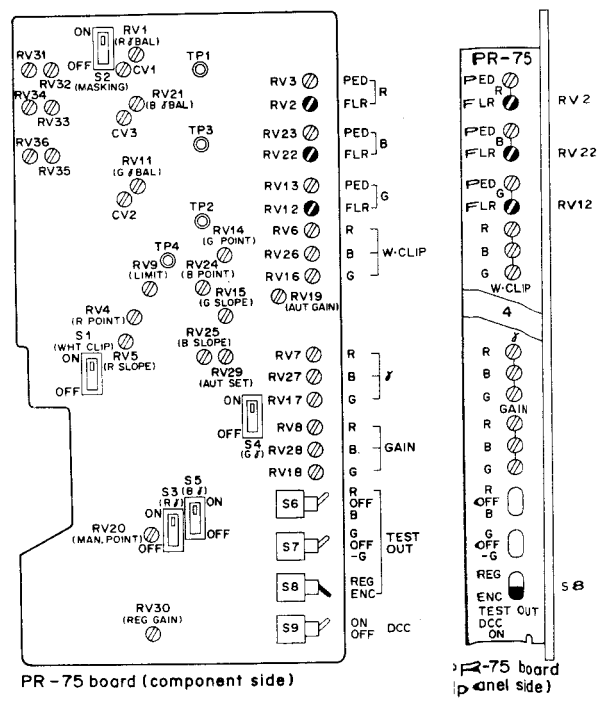
4-5-17. Flare Adjustment

Object : Grayscale chart
Measuring equipment : Waveform monitor
To be extended : PR-75 board
Preparations : S8 [REG/ENC] → ENC
● RV22 [B.FLR] → Fully counterclockwise ↺ } /PR-75 board
OUTPUT switch → CAM
S1 [TEST]/SH-8A board → OFF As shown below, stick non-reflex and non-photoconductive cloth (e.g. velvet etc.) on the grayscale chart as a reference of the black level.



1. Adjust the zoom control so that the grayscale chart frame touches the undrescanned picture frame on the monitor.
2. Open the iris control by 1 position from the position which the video level at the TEST OUT terminal is st at 700 mV.
3. Adjust the ● RV2 [R.FLR] and ● RV12 [G.FLR]/PR-75 board so that the waveform amplitude of the black level is minimized.



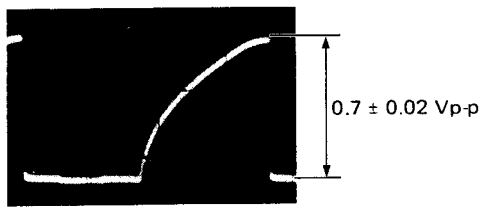


4-5-18. PR Gain Adjustment

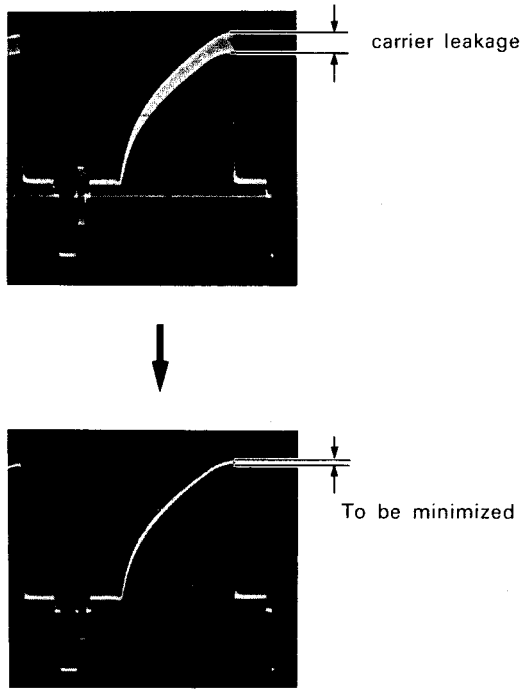
Note: Be sure to carry out 4-5-14. Gamma Balance Adjustment before this adjustment.

Measuring equipment : Oscilloscope, Waveform monitor
To be extended : PR-75 board
Preparations : S1 [WHT CLIP] → OFF
S3 [Ry → ON]
S4 [Gy → ON]
S5 [By → ON]
S1 [TEST]/SH-8A board → ON
} /PR-75 board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the ◐ RV18 [G. GAIN]/PR-75 board so that the video level at B9/extension board is 0.7 ± 0.02 Vp-p.



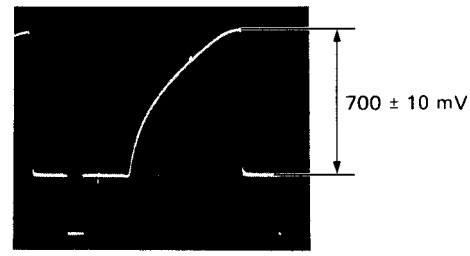
2. S8 [REG/ENC]/PR-75 board → ENC
3. Adjust the ◐ RV8 [R. GAIN] and ◐ RV28 [B. GAIN]/PR-75 board so that the carrier leakage at the peak of the test signal waveform at the TEST OUT terminal is minimized.

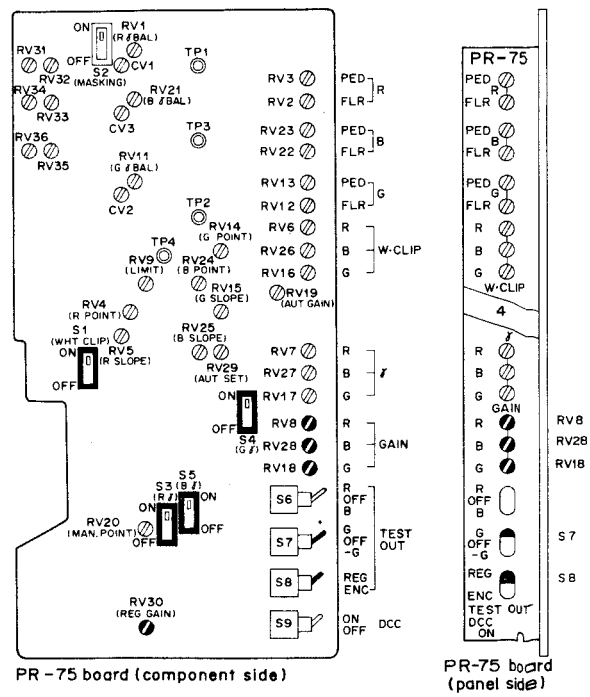


4-5-19. Registration Video Gain Adjustment

Note: Be sure to carry out 4-5-17. PR Gain Adjustment before this adjustment.

Measuring equipment : Waveform monitor
To be extended : PR-75 board
Preparations : S1 [WHT CLIP] → OFF
S8 [REG/ENC] → REG
S7 [G/−G] → G
S6 [R/G] → OFF
} /PR-75 board
To be measured : TEST OUT terminal
To be adjusted : ◐ RV30/PR-75 board
Specification : 700 ± 10 mV



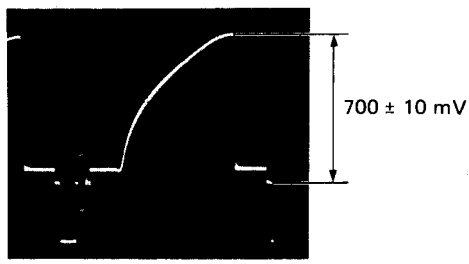


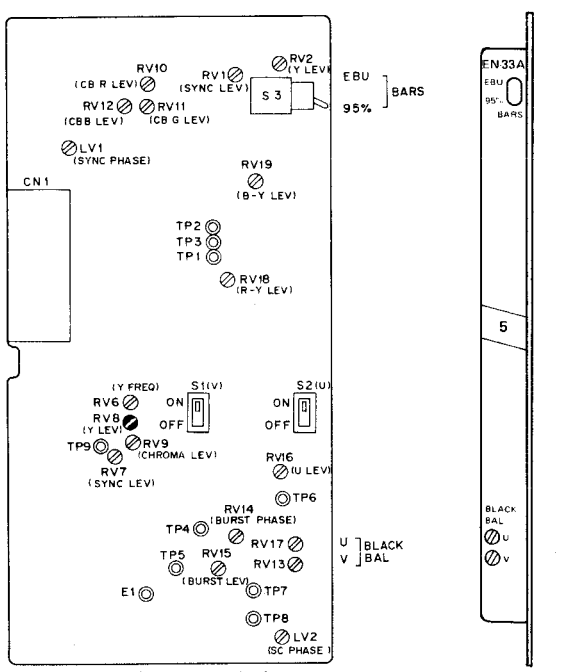
4-5-20. EN Y Level Adjustment

Note: Be sure to carry out 4-5-17. PR Gain Adjustment before this adjustment.

Measuring equipment : Waveform monitor
To be extended : EN-33A board
Preparation : S1 [TEST]/SH-8A board → ON
S1 [WHT CLIP] → OFF } /PR-75 board
S8 [REG/ENC] → ENC

Adjust the ◐ RV8/EN-33A so that the peak level of the test signal waveform at the TEST OUT terminal is 700 ± 10 mV.



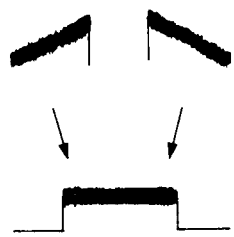
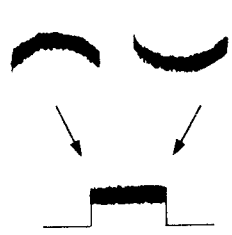
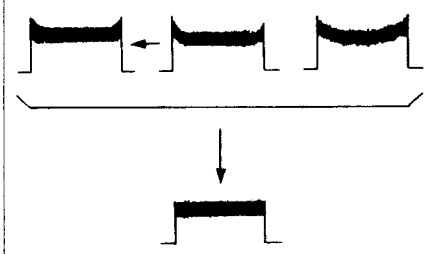


EN-33A board (component side)

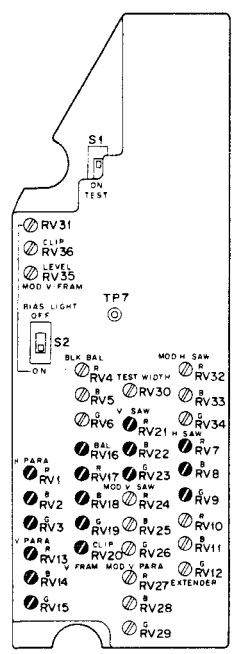
EN-33A board (panel side)

4-5-21. BLACK Shading Adjustment

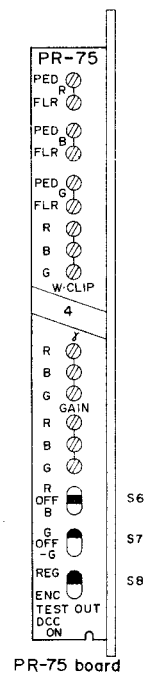
Lens : Close
Measuring equipment : Waveform monitor
Preparations : GAIN switch → 18 dB
S8 [REG/ENC]/PR-75 board → REG
S1 [TEST]/SH-8A board → OFF
Adjustment : Adjust the ◐ RVs so that all waveforms are flat. The following table shows the corresponding ◐ RVs and the symptoms of shading.

	Switch setting on the PR-75 board	Adjusting point on the SH-8A board						
		H·SAW	V·SAW	H·PARA	V·PARA	V·FRAM	V·FRAM BAL	V·FRAM CLIP
G	S7 [G/–G] →G S6 [R/B] →OFF	◐ RV9	◐ RV23	◐ RV3	◐ RV15	◐ RV19	◐ RV16	◐ RV20
R	S7 [G/–G] →OFF S6 [R/B] →R	◐ RV7	◐ RV21	◐ RV1	◐ RV13	◐ RV17		
B	S7 [G/–G] →OFF S6 [R/B] →B	◐ RV8	◐ RV22	◐ RV2	◐ RV14	◐ RV18		
TEST OUT								

Note: After this adjustment is completed, reset the GAIN switch to 0 dB.



SH-8A board(component side)



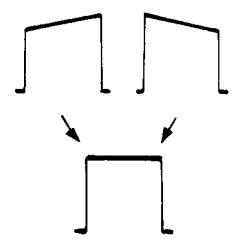
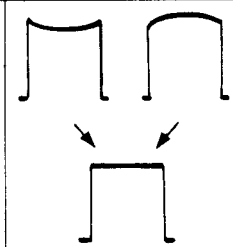
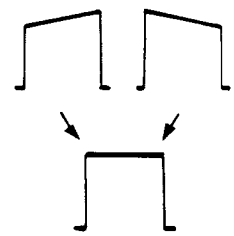
PR-75 board
(panel side)

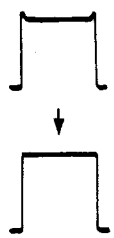
4-5-22. White Shading Adjustment

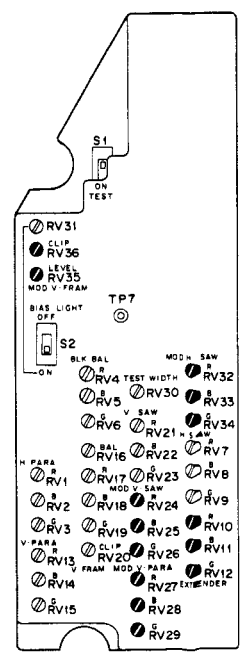
Object : White window chart
Measuring equipment : Waveform monitor
Preparations : S1 [WHT CLIP] →OFF } /PR-75 board
S8 [REG/ENC] →REG }

1. Adjust the zoom control ao that the white window frame touches the underscanned picture frame on the monitor.
2. Adjust the iris control so that the video level at the TEST OUT terminal is 700 mV.
3. Adjust ◐ RVs so that all waveforms are flat, following table is shown the corresponding ◐ RVs and the symptoms of shading.

Notes: The EXT MOD SAW adjustment can be performed when the lens with an extender is used.
Set the lens EXT lever at the X2 position and adjust the iris control so that the video level at the TEST OUT terminal is 700 mV, and then perform the EXT MOD SAWadjustment.
After the adjustment is completed, reset the EXT lever at the X1 position.

	Switch setting on the PR-75 board	Adjusting point on the SH-8A board			
		MOD H·SAW	MOD V·SAW	MOD V·PARA	EXT MOD SAW (V)
G	S7 [G/–G] →G S6 [R/B] →OFF	◐ RV34	◐ RV26	◐ RV29	◐ RV12
R	S7 [G/–G] →OFF S6 [R/B] →R	◐ RV32	◐ RV24	◐ RV27	◐ RV10
B	S7 [G/–G] →OFF S6 [R/B] →B	◐ RV33	◐ RV25	◐ RV28	◐ RV11
TEST OUT					

	CLIP	MOD V·FRAME
S8 [REG/ENC] →ENC	◐ RV36	◐ RV35
TEST OUT		

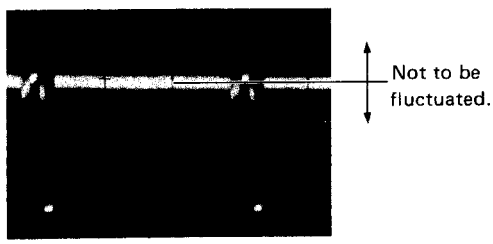


SH-8A board(component side)

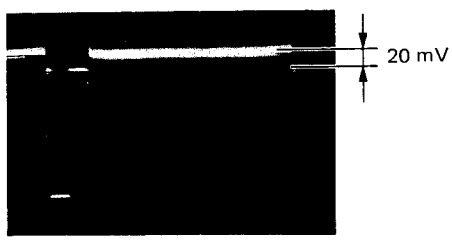
4-5-23. Black Balance and Pedestal Adjustment

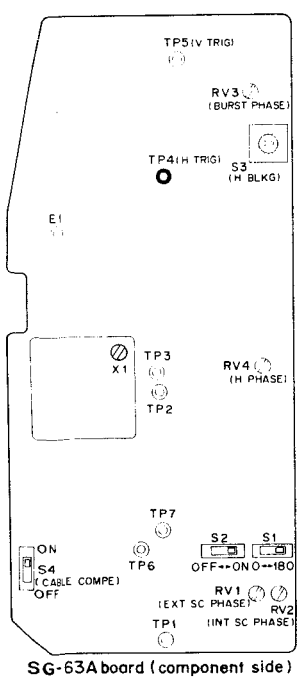
Lens : Close
Measuring equipment : Waveform monitor, Vectorscope (MAX GAIN)
To be extended : VA-14 board
Preparations : Reset the S4/AT-16 board at the OP position after it is set at PRST.
S8 [REG/ENC] →REG
S7 [G/−G] →G
S6 [R/B] →OFF
} /PR-75 board
Pedestal →mechanical center
Trigger : TP4 (H. TRIG)/SG-63A board

1. ◐ RV4 (R. BAL)/SH-8A board
◐ RV5 (B. BAL) →Fully counterclockwise ↺
2. When the GAIN switch is changed over from o dB to 9 dB and 18 dB , adjust the ◐ RV6/SH-8A board so that the black level at B5/Extension board does not change.

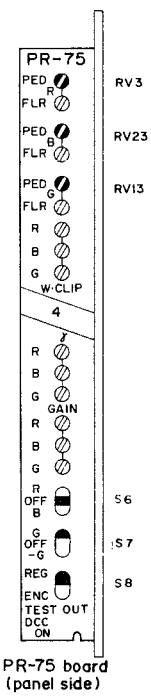


3. Adjust the ◐ RV13 [G. PED]/PR-75 board so that the pedestal level is 20 mV.



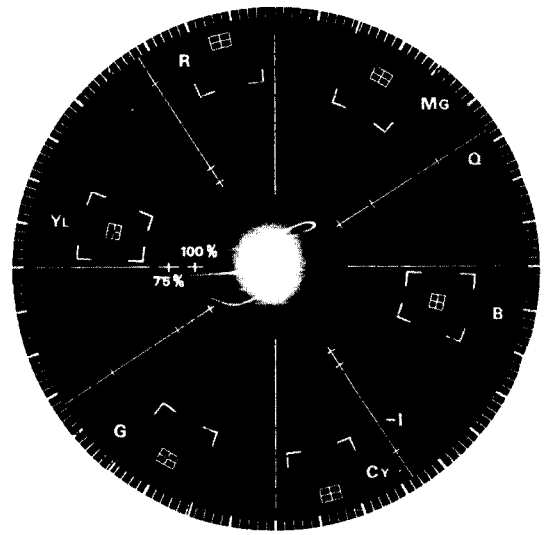


SG-63A board (component side)

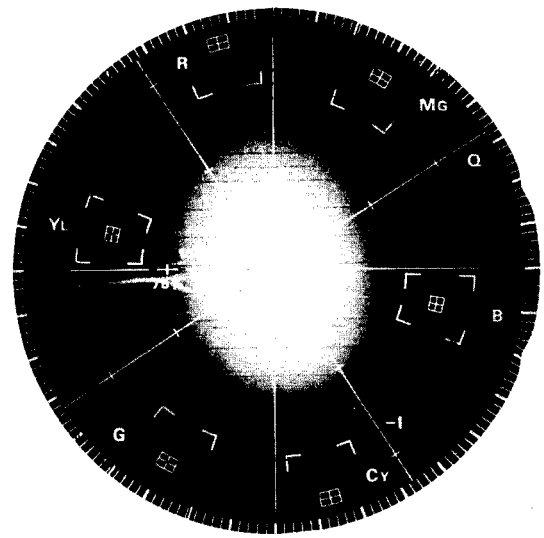


PR-75 board (panel side)

4. S8 [REG/ENC]/PR-75 board →ENC
5. Adjust the ◐ RV3 [R. PED] and ◐ RV23 [B. PED]/PR-75 board so that the beam spot is in the center of the vectorscope.



6. GAIN switch →18 dB.
7. Finely adjust the ◐ RV4 and ◐ RV5/SH-8A board so that the beam spot is in the center of the vectorscope.

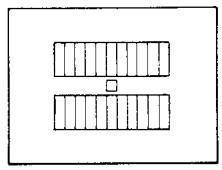


8. Repeat Step 1 through Step 7 until both specifications are satisfied.
9. GAIN switch →0 dB

4-5-24. Gamma Correction Adjustment

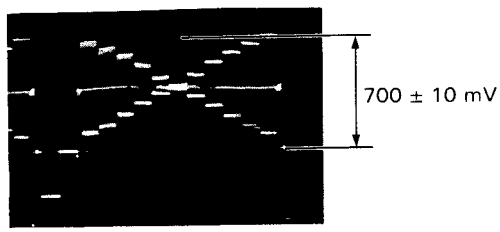
Object : Grayscale chart (11 step)
Measuring equipment : Waveform monitor
To be extended : PR-75 board
Preparations : S1 [WHT CLIP] →OFF
S8 [REG/ENC] →REG
S7 [G/−G] →G
S6 [R/B] →OFF
S3 [Ry] →ON
S4 [Gy] →ON
S5 [By] →ON
} /PR-75 board

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.

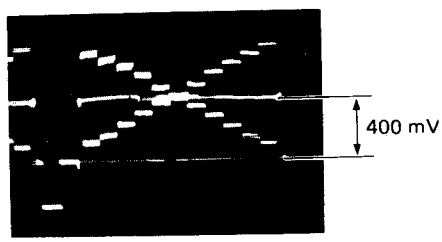


Monitor

2. Adjust the iris control so that the peak level at the TEST OUT terminal is 700 ± 10 mV.

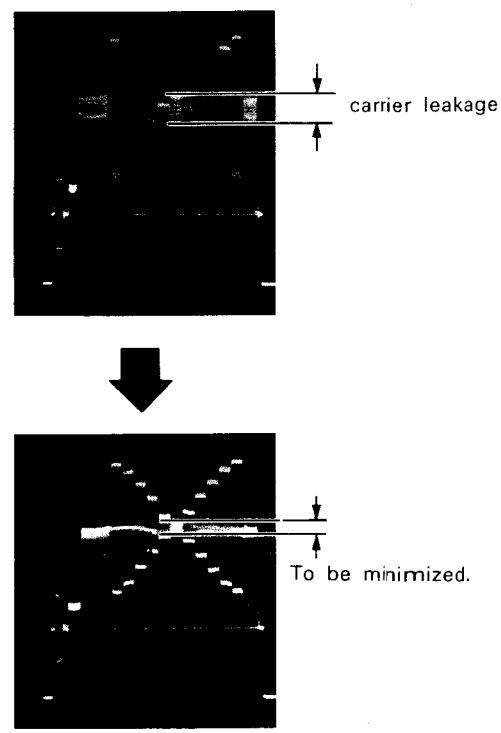


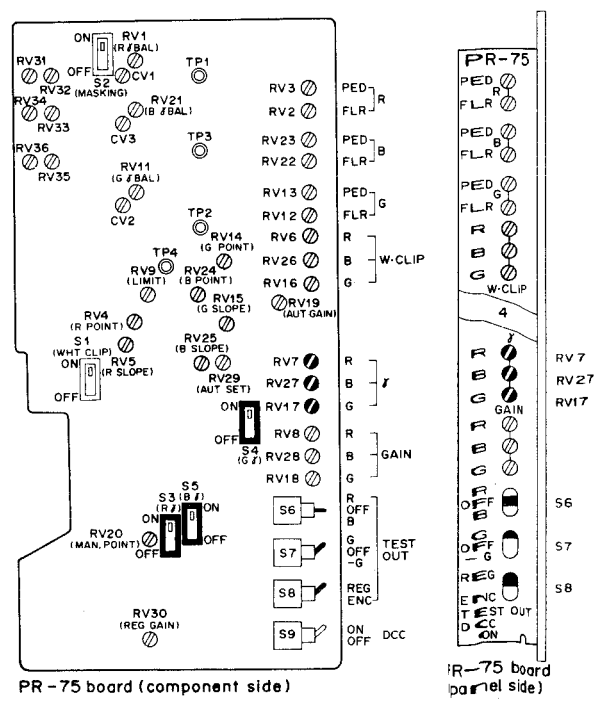
3. Adjust the ◐ RV17 [Gy]/PR-75 board so that the cross point on the waveform signal at the TEST OUT terminal is 400 mV.



4. S8 [REG/ENC]/PR-75 board →ENC.

5. Adjust the ◐ RV7 [Ry] and ◐ RV27 [By]/PR-75 board so that the carrier leakage at the cross point on the waveform signal is minimized.



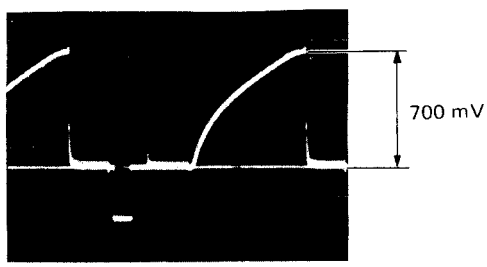


4-5-25. Knee, White Clip Adjustment

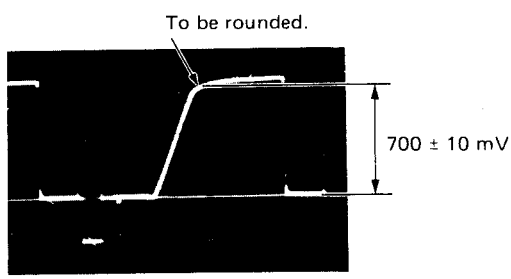
Measuring equipment : Waveform monitor
To be extended : PR-75 board
Preparations : S1 [TEST]/SH-8A board →ON
S3 [R_Y] →ON
S4 [G_Y] →ON
S5 [B_Y] →ON
S1 [WHT CLIP] →ON
S8 [REG/ENC] →REG
S7 [G/—G] →G
S6 [R/B] →OFF
S9 [R/B] →ON
◐ RV16 [G W. CLIP] →
Fully counterclockwise ↺
◐ RV6 [R W. CLIP] →
Fully counterclockwise ↺
◐ RV26 [B W. CLIP] →
Fully counterclockwise ↺
◐ RV15 →Fully clockwise ↻
◐ RV5 →Fully clockwise ↻
◐ RV25 →Fully clockwise ↻
GAIN switch →0 dB
} /PR-75 board
Trigger : TP4 (H. TRIG)/SG-63A board

* MANUAL KNEE WHITE CLIP ADJUSTMENT*

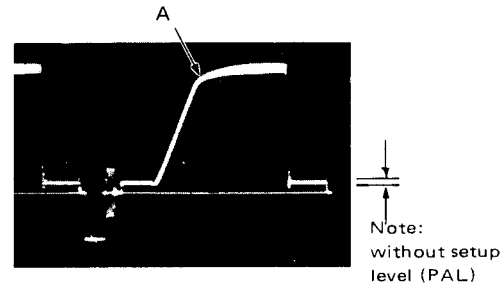
1. Adjust the ◐ RV20 (MAN. POINT)/PR-75 board turning from fully counterclockwise to fully clockwise slowly so that the peak level at the waveform signal is a start point at 700 mV.



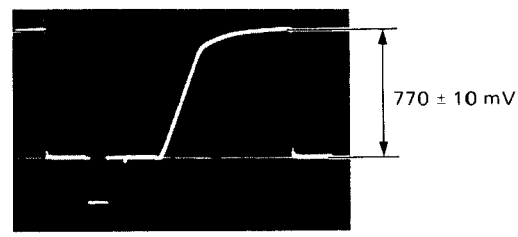
2. GAIN switch →9 dB
3. Adjust the ◐ RV14/PR-75 board so that the knee point at test signal waveform is 700 mV.



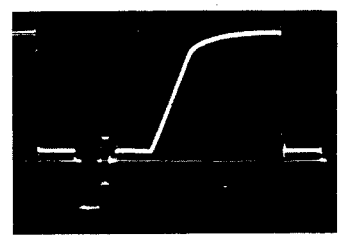
4. S8 [REG/ENC]/PR-75 board →ENC
5. Adjust both ◐ RV4 and ◐ RV24/PR-75 board so that the carrier leakage at the knee point (portion A) on the test waveform signal is minimized.



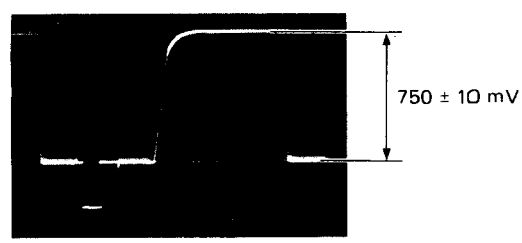
6. S8 [REG/ENC]/PR-75 board →REG
7. Adjust the ◐ RV15/PR-75 board so that the peak level at the waveform signal is 770 ± 10 mV.



8. S8 [REG/ENC]/PR-75 board →ENC
9. Adjust both ◐ RV5 and ◐ RV25/PR-75 board so that the carrier leakage at the TEST OUT waveform signal is minimized.



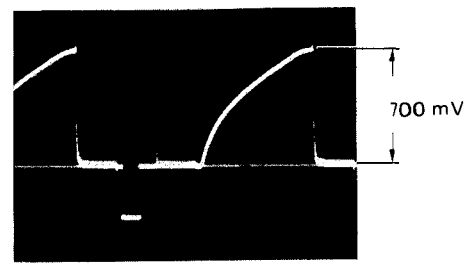
10. GAIN switch →18 dB
S8 [REG/ENC]/PR-75 board →REG
11. Adjust the ◐ RV16 [G W. CLIP]/PR-75 board so that the video level at the TEST OUT terminal is 750 ± 10 mV.



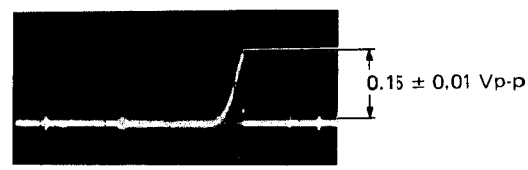
12. S8 [REG/ENC] /PR-75 board → ENC.
13. Adjust both ◐ RV6 [R W. CLIP] and ◐ RV26 [B W. CLIP] /PR-75 board so that the carrier leakage at the TEST OUT waveform signal is minimized.

AUTO KNEE WHITE CLIP ADJUSTMENT

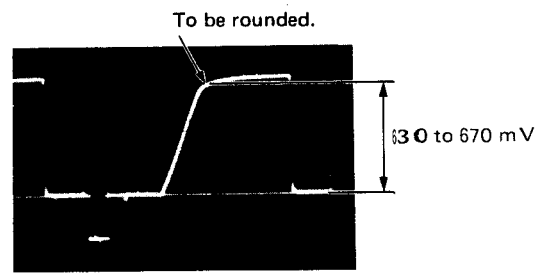
14. S8 [REG/ENC] → REG
    S7 [G/–G] → G
    S6 [R/B] → OFF
    S9 [DCC] → ON
    ◐ RV9 (LIMIT) → Fully counterclockwise ↺
    ◐ RV29 (AUTO SET) → mechanical center
    GAIN switch → 0 dB
    } /PR-75 board
15. Adjust the ◐ RV19 (AUTO GAIN)/PR-75 board turning from fully clockwise to fully counterclockwise slowly so that the peak level at the waveform signal is a start point at 700 mV.

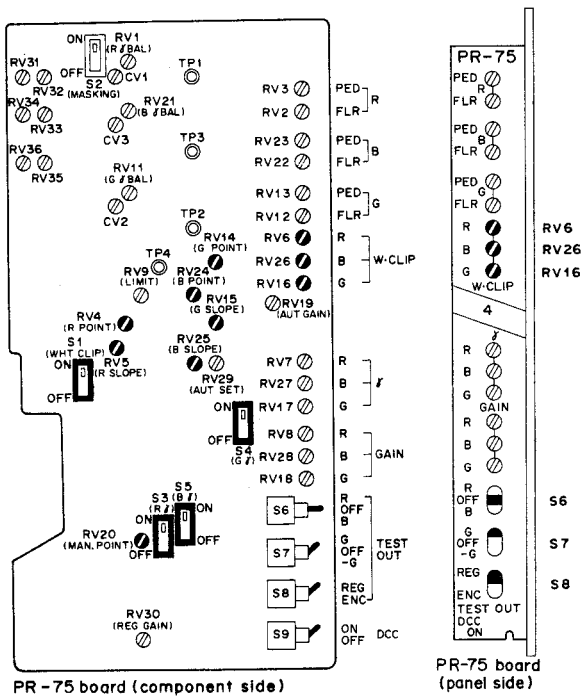


16. Adjust the ◐ RV29 (AUTO SET)/PR-75 board so that the peak level of test waveform signal at TP4/PR-75 board is 0.15 ± 0.01 Vp-p.

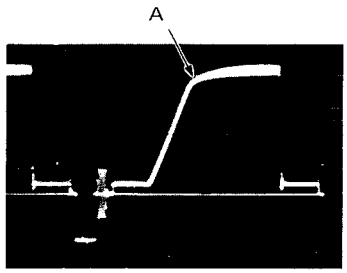


17. GAIN switch → 9 dB
18. Adjust the ◐ RV14/PR-75 board so that the knee point at test signal waveform is 630 to 670 mV.

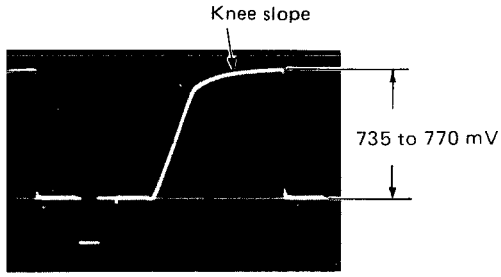




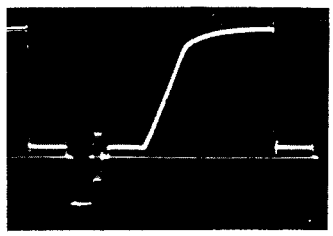
19. S8 [REG/ENC]/PR-75 board →ENC
20. Adjust both ◐ RV4 and ◐ RV24/PR-75 board so that the carrier leakage at the knee point (portion A) on the test waveform signal is minimized.



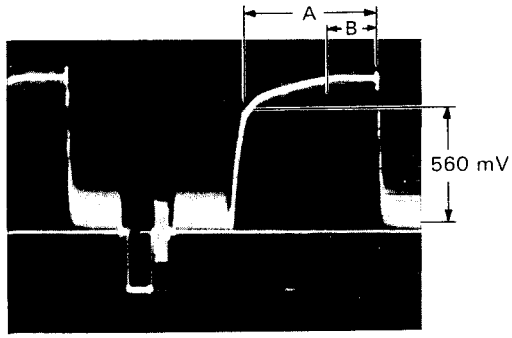
21. S8 [REG/ENC]/PR-75 board →REG
22. Adjust the ◐ RV15/PR-75 board so that the peak level at the waveform signal is 735 to 770 mV.
Be sure that the knee slope (portion A) is a straight line as possible.



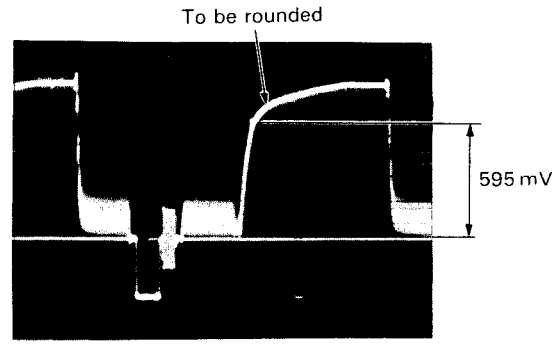
23. S8 [REG/ENC]/PR-75 board →ENC
24. Adjust both ◐ RV5 and ◐ RV25/PR-75 board so that the carrier leakage at the TEST OUT waveform signal is minimized.



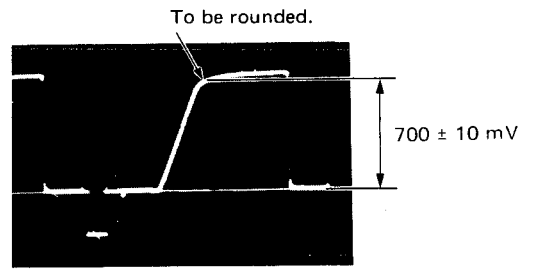
25. GAIN switch →18 dB
26. Adjust Steps 17 to 23 repeatedly, so that the knee point on the test waveform signal is 560 mV and B/A ≦ 1/3.

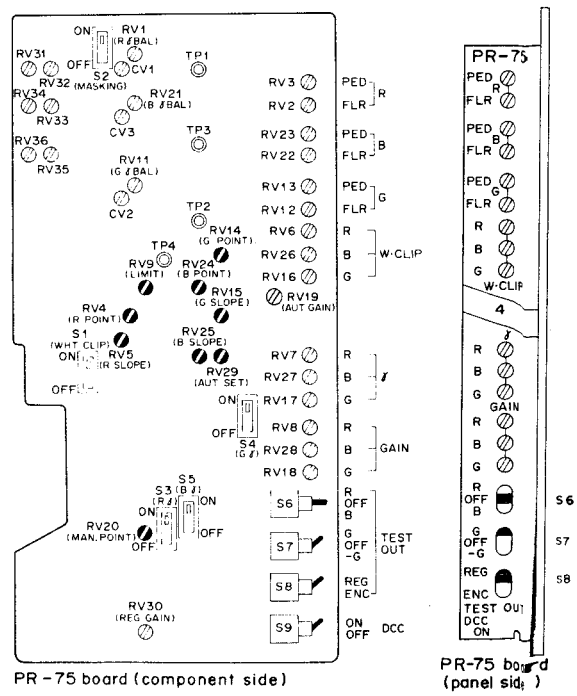


27. Adjust the ◐ RV9 (LIMIT)/PR-75 board so that the knee point on the test waveform signal is 595 mV.



28. GAIN switch →9 dB
S8 REG/ENC /PR-75 board →REG
S9 [DCC] /PR-75 board→ OFF
29. Adjust the ◐ RV20 (MAN. POINT)/PR-75 board so that the knee point on the test waveform signal is 700 ± 10 mV.





PR-75 board (component side)

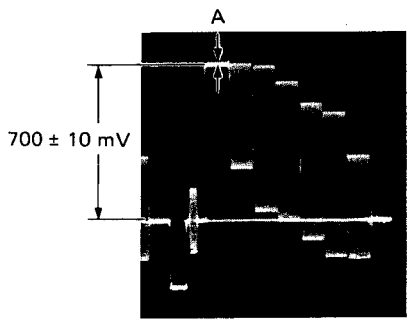
PR-75 board (panel side)

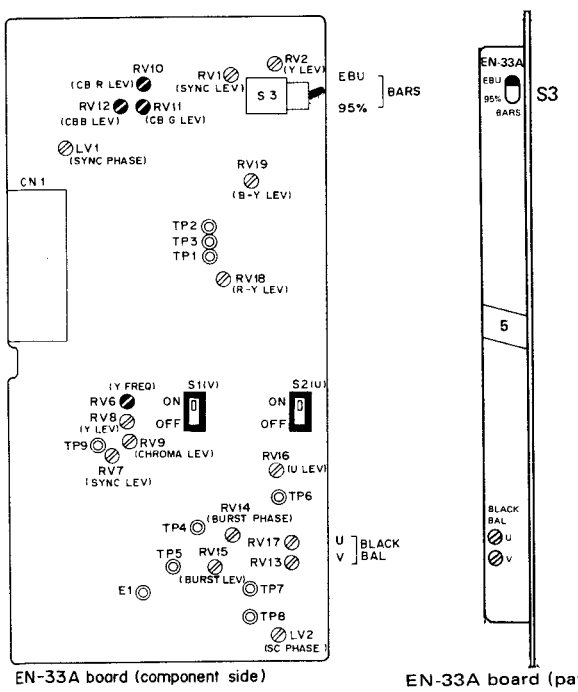
4-5-26. Color Bar Adjustment

Note: Be sure to carry out 4-5-19. EN Y Level Adjustment before this adjustment.

Measuring equipment: Waveform monitor
To be extended : EN-33A board
Preparations : OUTPUT switch → BARS
S3 [BARS] /EN-33A board → EBU
S8 [REG/ENC] /PR-75 board → ENC
To be measured : TEST OUT terminal

1. Adjust the ⊘RV10, ⊘RV11 and ⊘RV12/EN-33A board so that the portion A at the TEST OUT waveform signal is 700 ± 10 mV and the carrier leakage is minimized.





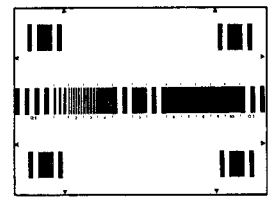
EN-33A board (component side)

EN-33A board (panel side)

4-5-27. EN Frequency Response Adjustment

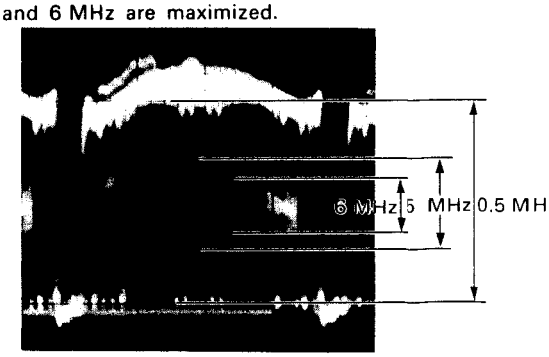
Object : Multiburst chart
Measuring equipment: Oscilloscope, Waveform monitor
To be extended : EN-33A board
Preparations : S1 [V] → OFF
S2 [U] → OFF
} /EN-33A board
S8 [REG/ENC] /PR-75 board → ENC
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.

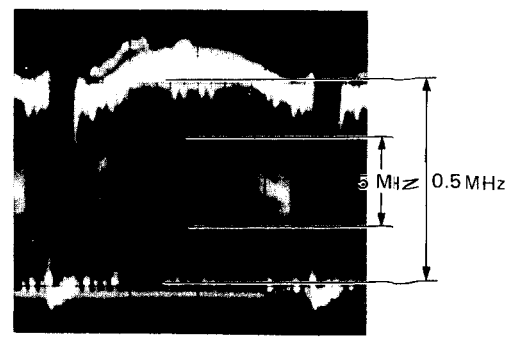


Monitor (Underscanning)

2. Adjust the iris control so that the video level corresponding to 0.5 MHz at the TEST OUT terminal is 700 mV. And adjust the focus control so that the waveform signal amplitude at both 5 MHz and 6 MHz are maximized.



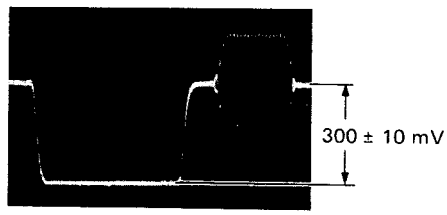
3. Adjust the ⊘ RV6/EN-33A board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at the TEST OUT terminal is same as that at A9/extension board.



Note: After adjustment, set both S1 [V] and S2 [U] /EN-33A board at ON.

4-5-28. EN SYNC Adjustment

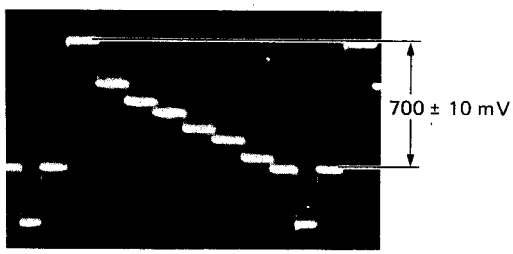
Lens : Close
Measuring equipment: Waveform monitor
To be extended : EN-33A board
To be measured : TEST OUT terminal
To be adjusted : ◐ RV7/EN-33A board
Specification : 300 ± 10 mV



4-5-29. VTR Y Adjustment

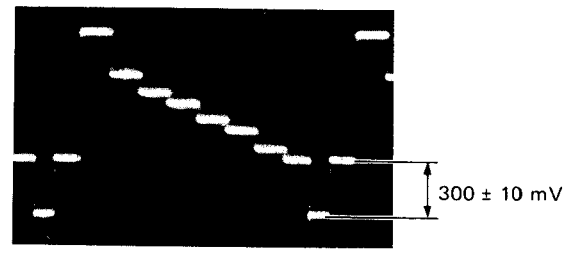
Measuring equipment: Oscilloscope
To be extended : EN-33A board
Preparations : OUTPUT switch → BARS
S3 [BARS] /EN-33A board → EBU
To be measured : B13 (⏚ GND)/extension board
Trigger : TP4 (H. TRIG)/SG-63A board

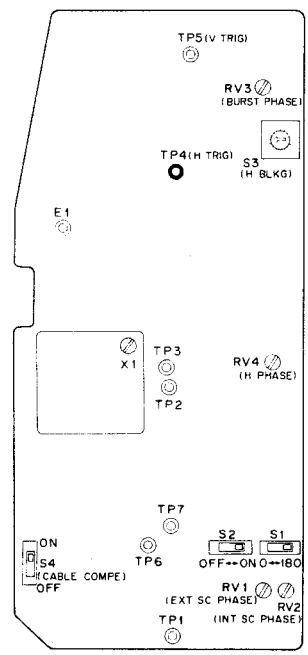
1. Adjust the ◐RV2/EN-33A board so that the waveform signal level is 700 ± 10 mV.



4-5-30. VTR SYNC Adjustment

Lens : Close
Measuring equipment: Oscilloscope
To be extended : EN-33A board
To be measured : B13 (⏚ GND)/extension board
Trigger : TP4 (H. TRIG)/SG-63A board
To be adjusted : ◐ RV1/EN-33A board
Specification : 300 mV ± 10 mV

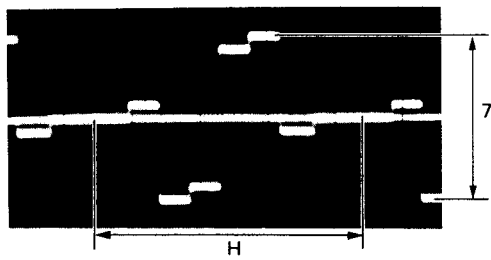




SG-63A board (component side)

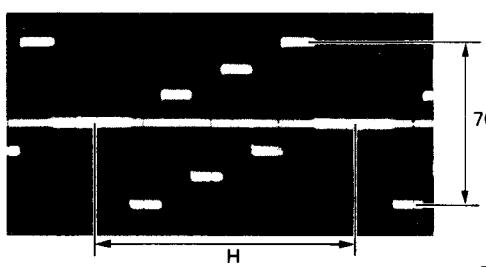
4-5-31. VTR R-Y Gain Adjustment

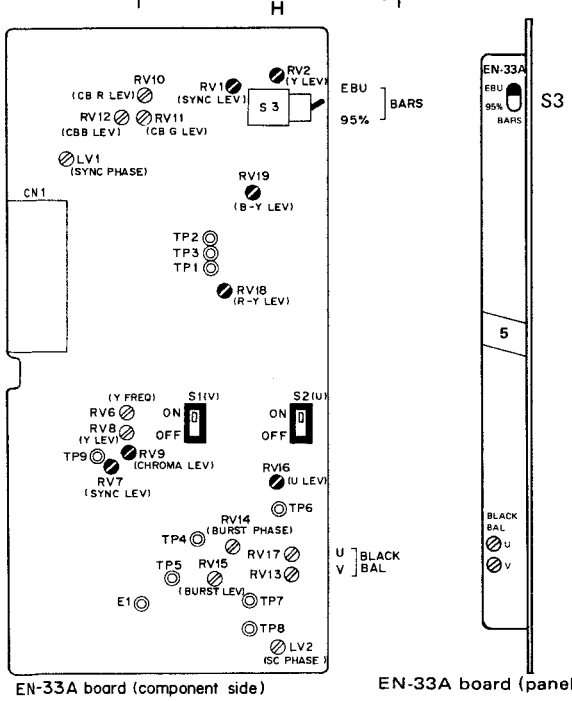
Measuring equipment: Oscilloscope
To be extended : EN-33A board
Preparation : OUTPUT switch → BARS
To be measured : A17 (⏚ GND)/extension board
Trigger : TP4 (H. TRIG)/SG-63A board
To be adjusted : ⊘ RV18/EN-33A board
Specification : 700 ± 15 mVp-p



4-5-32. VTR B-Y Gain Adjustment

Measuring equipment: Oscilloscope
To be extended : EN-33A board
Preparation : OUTPUT switch → BARS
To be measured : A14 (⏚ GND)/extension board
Trigger : TP4 (H. TRIG)/SG-63A board
To be adjusted : ⊘ RV19/EN-33A board
Specification : 700 ± 15 mVp-p





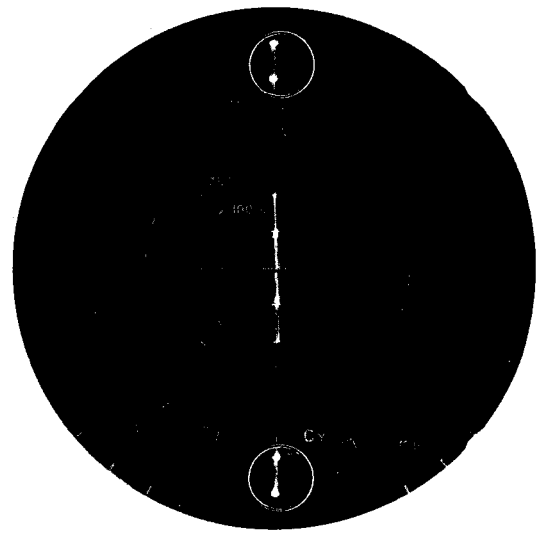
EN-33A board (component side)

EN-33A board (panel side)

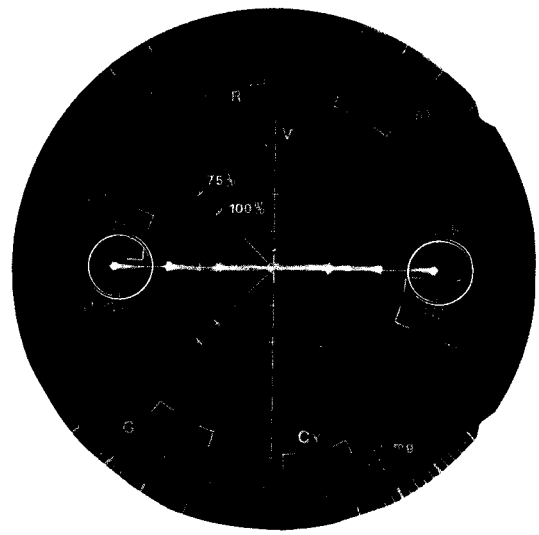
4-5-33. V.U Gain Adjustment

Measuring equipment: Vectorscope
To be extended : EN-33A board
Preparation : OUTPUT switch → BARS
To be measured : TEST OUT terminal

1. S1 [V] → ON
   S2 [U] → OFF
   } /EN-33A board
2. Adjust the PHASE control of the vectorscope so that the V signal is overlapped with V axis on the vectorscope.
3. Adjust the ⊘ RV9/EN-33A board so that the beam spots at both ends of the V signal are overlapped with the scale of the vectorscope.



4. S1 [V] → OFF
   S2 [U] → ON
   } /EN-33A board
5. Adjust the PHASE control of the vectorscope so that the U signal is overlapped with U axis on the vectorscope.
6. Adjust the ⊘ RV16/EN-33A board board so that the beam spots at both ends of the U signal are overlapped with the scale of the vectorscope.

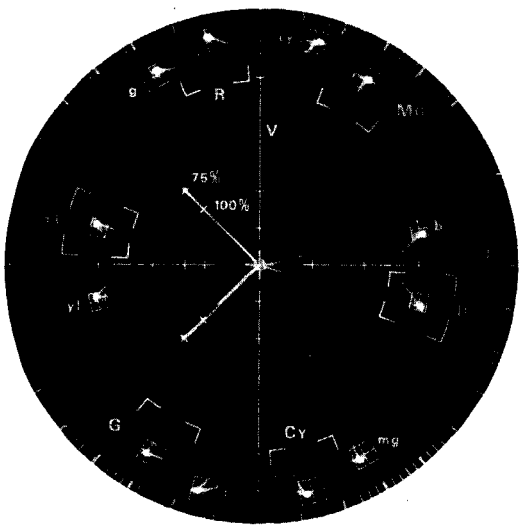


Note: After this adjustment is completed, set the S1 [V]/EN-33A board at ON.

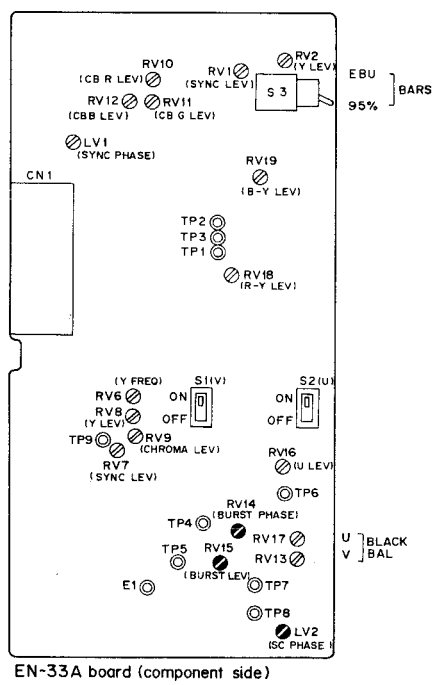
4-5-34. Burst Adjustmemt

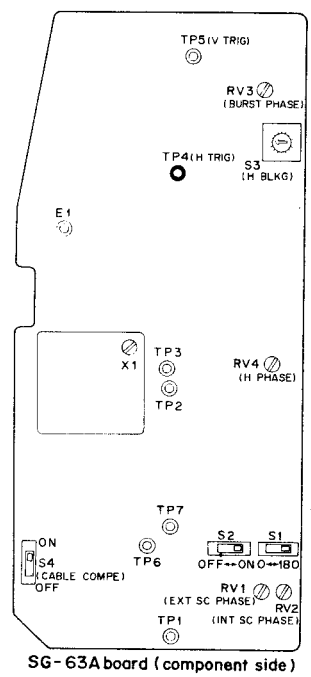
Measuring equipment: Vectorscope
To be extended : EN-33A board
Preparation : OUTPUT switch → BARS

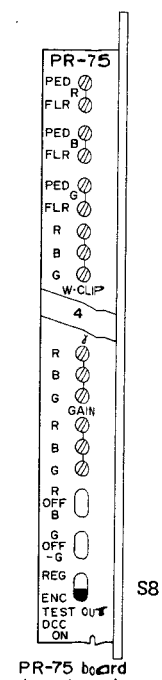
1. Adjust the ⊘ RV14, ⊘ RV15 and ⊘ LV2/EN-33A board so that the burst signals are overlapped with the 75% scale as shown below.



2. Check whether the each bright spot of the color bars is located in the scale (⊞) of vectorscope.
If not, readjust 4-5-32. V.U Gain Adjustment.







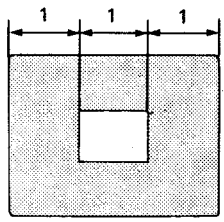
4-5-35. IE-6P Board Adjustment

To be extended : IE-6P board
Preparations : S3 [DTL] /IE-6P board → ON
S8 [REG/ENC] /PR-75 board → ENC

(1) Clipping Point Adjustment

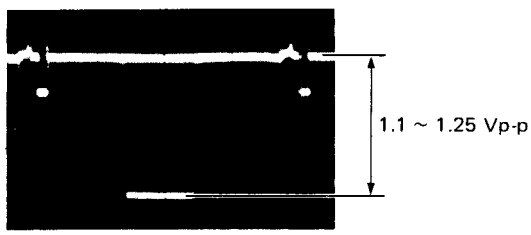
Object : White window chart
Measuring equipment: Oscilloscope
Trigger : TP4 (H. TRIG)/SG-63A board

1. Shoot the white window chart as shown below.



Monitor

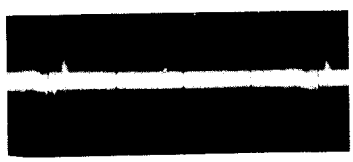
2. Adjust the ⊘ RV1/IE-6P board so that the waveform signal level at TP2/IE-6P board is clipped at 1.1 through 1.25V when the lens iris is set at OPEN.



(2) 1H- and 2H-DELAY Signal Phase Adjustment

Object : White window chart
Measuring equipment: Oscilloscope
Trigger : TP4 (H. TRIG)/SG-63A board

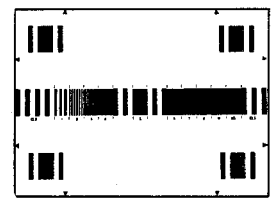
1. Adjust the ⊘ CV2 and ⊘ CV3/IE-6P board so that the H. DTL signal does not appear at TP3/IE-6P board.



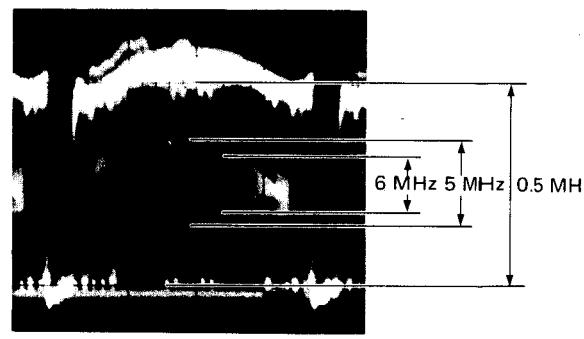
(3) IE Frequency Response Adjustment

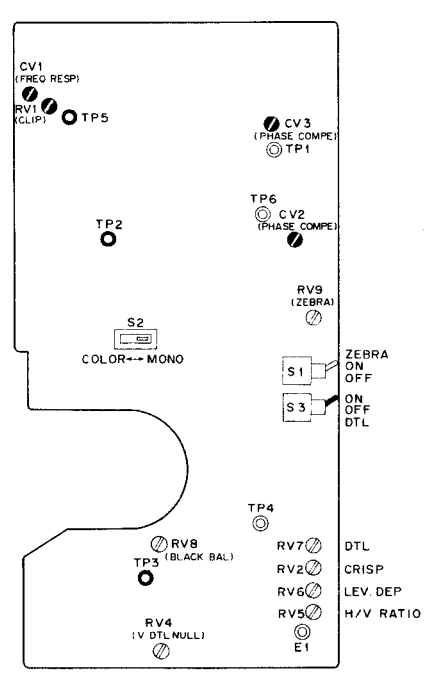
Object : Multiburst chart
Measuring equipment: Oscilloscope
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the Multiburst chart frame touches the underscanned picture frame on the monitor.

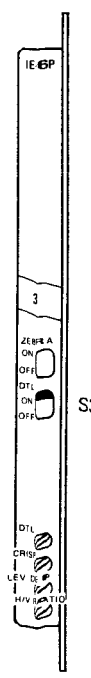

Monitor

2. Adjust the iris control so that the video level corresponding to 0.5 MHz at TP5/IE-6P board is 0.5V. And adjust the focus control so that the waveform amplitude at 5 MHz and 6 MHz is maximized.
3. Adjust the ⊘ CV1/IE-6P board so that the ratio between the amplitude of 5 MHz and 0.5 MHz at TP2/IE-6P board is same as that at TP5/IE-6P board.





IE-6P board (component side)

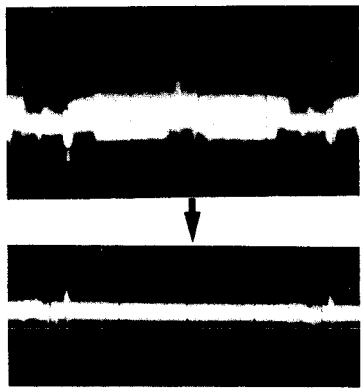


IE-6P board (panel side)

(4) V. DTL NULL Adjustment

Object : Grayscale chart
Measuring equipment: Waveform monitor, Oscilloscope
Trigger : TP5 (V. TRIG)/SG-63A board

1. Adjust the iris control so that the video level at the TEST OUT terminal is 686 mV.
2. Adjust the ⊘ RV4/IE-6P board so that the waveform amplitude at TP3/IE-6P board is minimized.

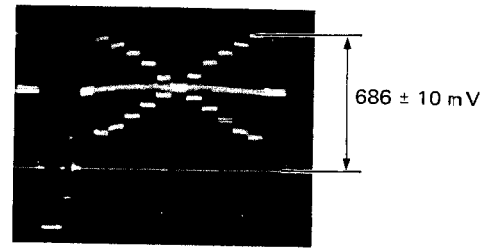


APPLICABLE SERIAL No.
BVP-3AP(EK): UP TO 22710

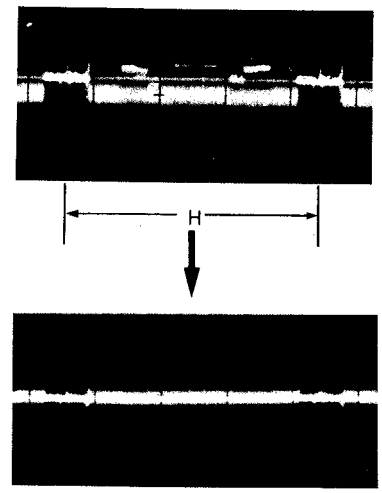
(5) Black Balance Adjustment

Object : Grayscale chart
Equipment : Oscilloscope, Waveform monitor
Preparations : ⊘ RV7 [DTL] →Fully ↻
⊘ RV2 [CRISP] →Fully ↺
⊘ RV6 [LEV. DEP] →Fully ↺
} /IE-6P board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 mV ± 10 mV.



2. Adjust the ⊘ RV8/IE-6P board so that the waveform amplitude at TP4/IE-6P board is minimized.

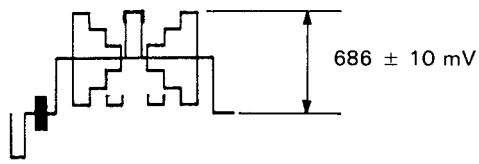


APPLICABLE SERIAL No.
BVP-3AP(EK): 22801 AND HIGHER

(5) Black Balance Adjustment

Object : Grayscale chart
Measuring equipment: Oscilloscope, Waveform monitor
Preparations : ⊘ RV7 [DTL] → Fully clockwise (↻)
⊘ RV2 [CRISP] → Fully counter clockwise (↺) } /IE-6P board
Trigger : TP4 (H. TRIG)/SG-63A board

1. Adjust the zoom control so that the grayscal chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 mV ± 10 mV.



2. Turn ⊘ RV6/IE-6P board to fully counter clockwise (↺), then adjust the ⊘ RV6 to clockwise direction so that waveform at TP4/IE-6P board is like a following Fig-A.

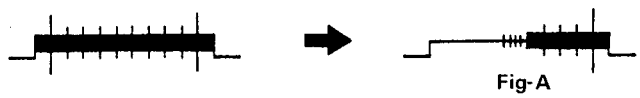
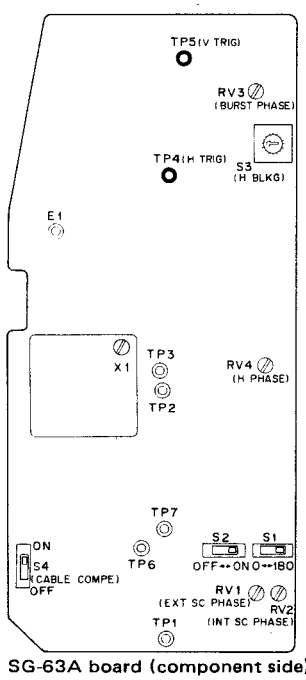


Fig-A



SG-63A board (component side)

3. Adjust ⊘ RV8/IE-6P board so that the level A of Fig-B waveform at TP4/IE-6P board is level zero.

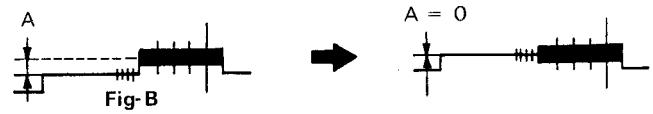


Fig-B

4. Turn ⊘ RV6/IE-6P board to fully counter, clockwise (↺).

5. Adjust ⊘ RV11/IE-6P board so that the level B of Fig-C at TP4/IE-6P board is level zero.

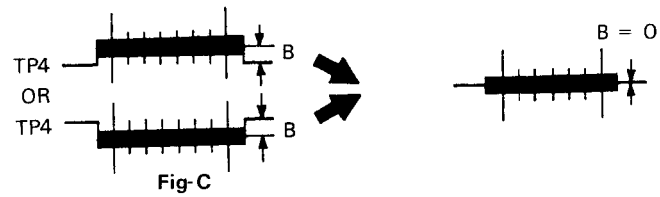
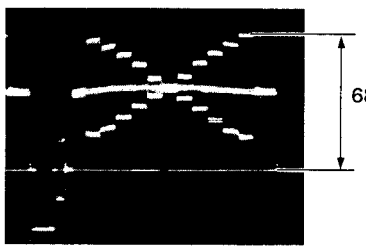


Fig-C

(6) Crispening Adjustment

Object : Grayscale chart
Measuring equipment: Waveform monitor
Preparations : ◐ RV6 [LEV. DEP]
→ Fully counterclockwise ↺
◐ RV5 [H/V RATIO]
→ Fully counterclockwise ↺
} /IE-6P board

1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 ± 10 mV.
2. Adjust the ◐ RV2 [CRISP] /IE-6P board for such a position that noise of the output waveform on waveform monitor starts to be reduced.

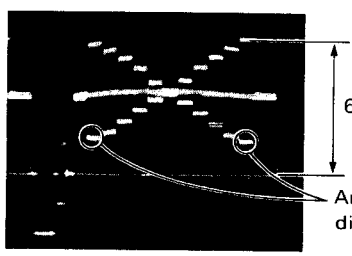


Note: After this adjustment is completed, be sure to carry out (7) Level Dependent Adjustment.

(7) Level Dependent Adjustment

Object : Grayscale chart
Measuring equipment: Waveform monitor

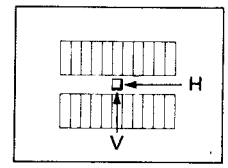
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor, and adjust the iris control so that the video level at the TEST OUT terminal is 686 ± 10 mV.
2. Adjust the ◐ RV6 [LEV. DEP] /IE-6P board so that the DTL signal is not added to the lowermost step of TEST OUT waveform signal.



(8) H/V RATIO Adjustment

Object : Grayscale chart
Preparation : ◐ RV7 [DTL] /IE-6P board
→ Fully clockwise ↻

1. Adjust the ◐ RV5 [H/V RATIO] /IE-6P board so that the monitor H and V DTL amounts are the same.



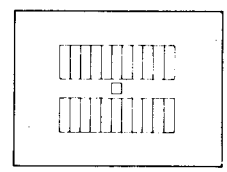
Monitor

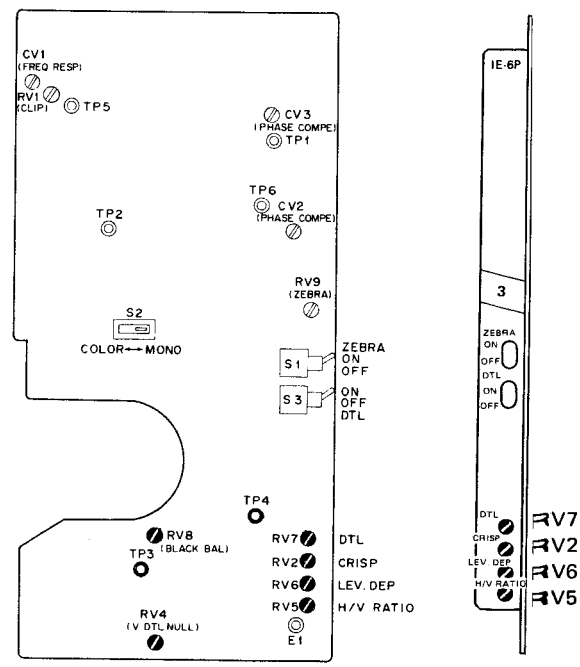
Note: After this adjustment is completed, be sure to carry out (9) DTL Gain Adjustment.

(9) DTL Gain Adjustment

Object : Grayscale chart
To be adjusted : ◐ RV7 [DTL] /IE-6P board

1. Set the ◐ RV7 [DTL] according to the users' requirements while observing the monitor.


Monitor

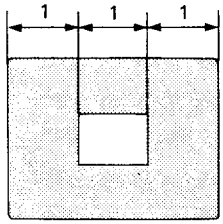


IE-6P board (component side)
IE-6P board (panel side)

4-5-36. VF Zebra Adjustment

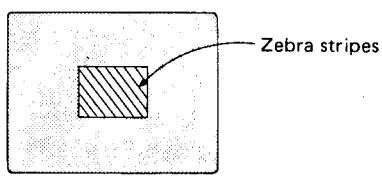
Object : White window chart
Measuring equipment: Waveform monitor
Preparations : S8 [REG/ENC] /PR-75 board → ENC
S1 [ZEBRA] /IE-6P board → ON

1. Shoot the white window chart as shown below.

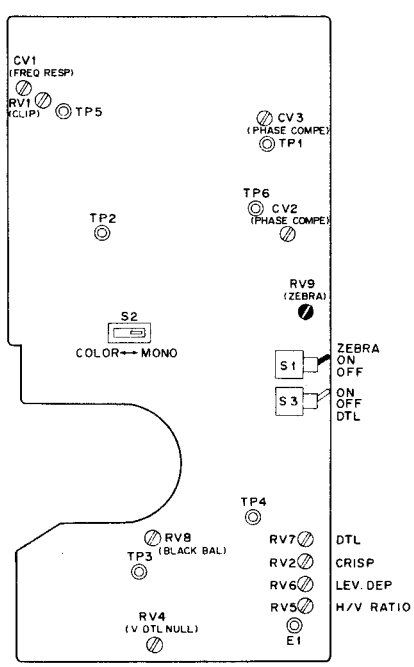


Monitor

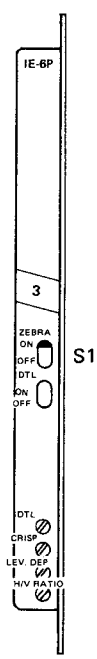
2. Adjust the iris control so that the video level at the TEST OUT terminal is 500 mV.
3. Adjust the ⊘ RV9/IE-6P board so that the viewfinder has zebra stripes.



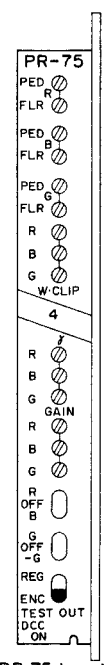
Viewfinder



IE-6P board (component side)



IE-6P board (panel side)

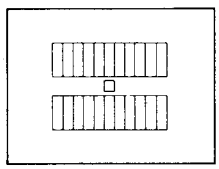


PR-75 board (panel side)

4-5-37. Auto Iris Adjustment

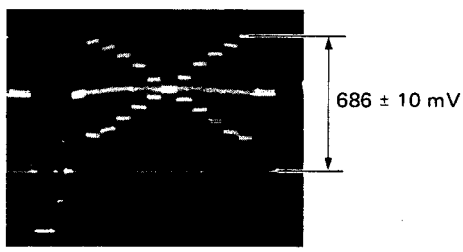
Object : Grayscale chart
Measuring equipment: Waveform monitor
Lens : AUTO/MANU switch → AUTO
Preparation : ⊘RV1/AT-16 board → Mechanical center

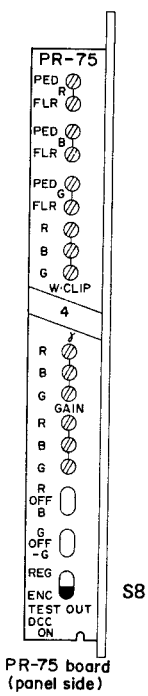
1. Adjust the zoom control so that the grayscale chart frame touches the underscanned picture frame on the monitor.



Monitor

2. Adjust the ⊘RV2/AT-16 board so that the video level at the TEST OUT terminal is 686 ± 10 mV.

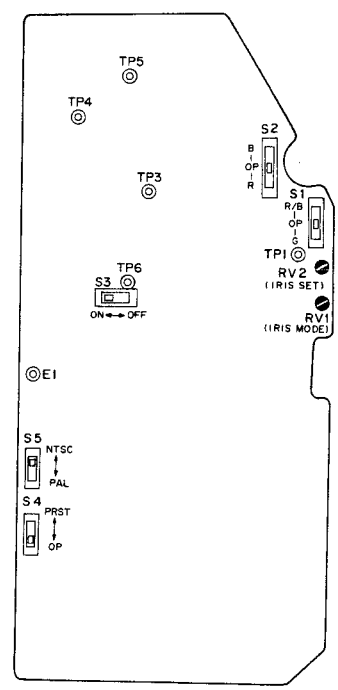




PR-75 board (panel side)

4-5-38. Auto Iris Mode Adjustment

Notes: The Auto Iris mode is usually set at the mechanical center position.
Adjust the ⊘RV1/AT-16 board so that the average or peak mode is established in accordance with the requirements.

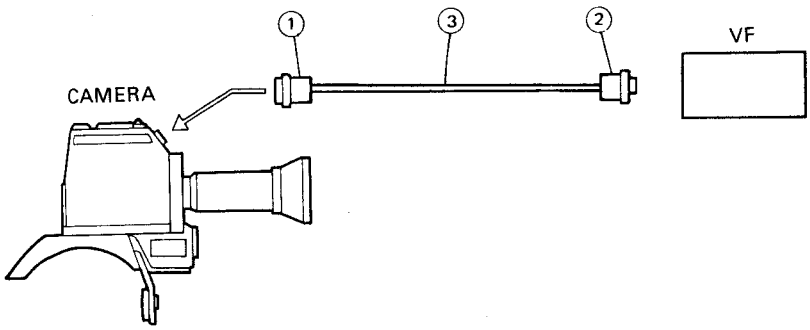


AT-16 board (component side)

HOW TO MAKE THE VF EXTENSION CABLE

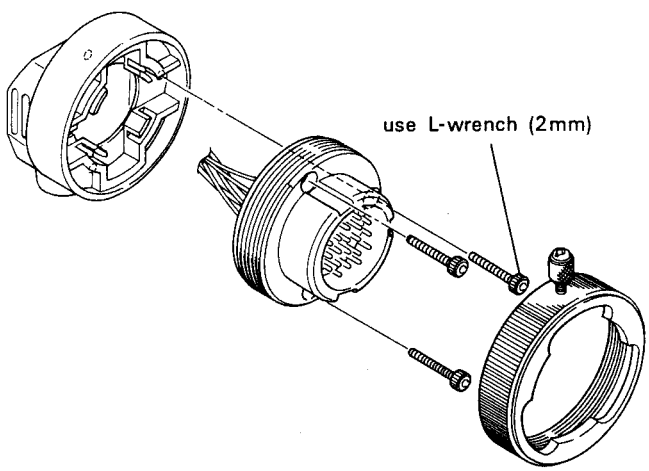
1. Requisite Parts.

① 20P-CONNECTOR (male) 1-560-704-21
② 20P-CONNECTOR (female) ... 1-561-812-00
③ CABLE (WIRE: Single ... 3, Shield ... 1)

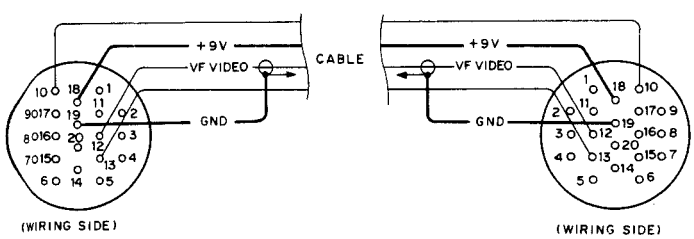


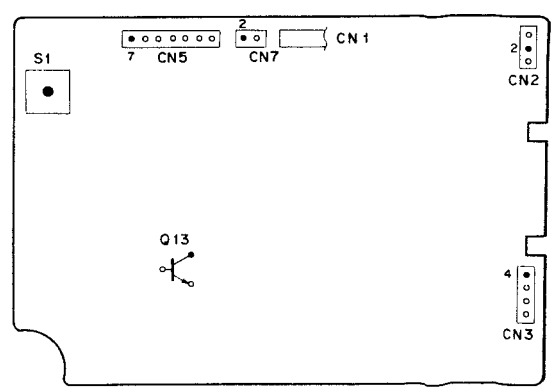
2. Remove 20P-Connector

ex: male



3. WIRING





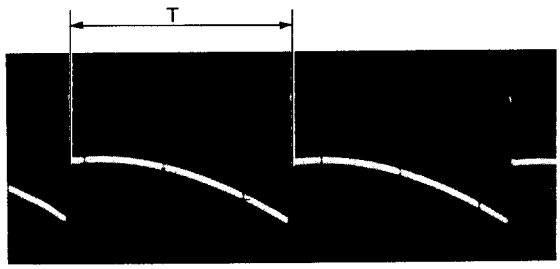
VF-22 board (soldering side)

4-6. VIEWFINDER SYSTEM ADJUSTMENT

- When adjusting the viewfinder, turn it 180° so that it is upside down.
- Be sure that the camera is adjusted completely.
- Set the lens iris to AUTO, unless otherwise specified.

4-6-1. V Hold Adjustment

Measuring equipment: Oscilloscope
Preparation : Pull the IE-6P board out of the Camera. Set the ⊘ RV9/VF-22 board to mechanical center unless otherwise marked.
To be measured : 4 pin of CN3
To be adjusted : ⊘ RV7/VF-22 board
Specification : T = 25.6 ± 0.5 mS



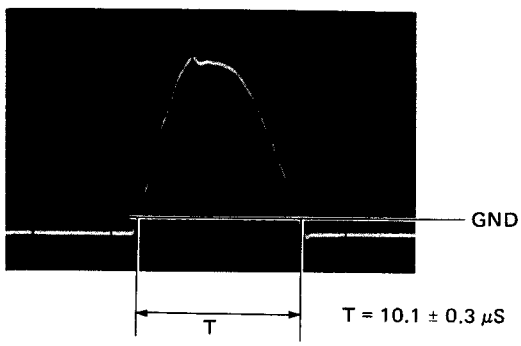
Note: After this adjustment is completed, insert the IE-6P board into the Camera.

4-6-2. Flyback Pulse Width Adjustment

Note: Carry out this adjustment only when the T2 (FLYBACK) /VF-22 board is replaced.

Measuring equipment: Oscilloscope (AC mode)
Preparations : BRIGHT → Fully counterclockwise
CONTR → Fully counterclockwise
To be measured : Collector of Q13/VF-22 board
Specification : T = 10.1 ± 0.3μs

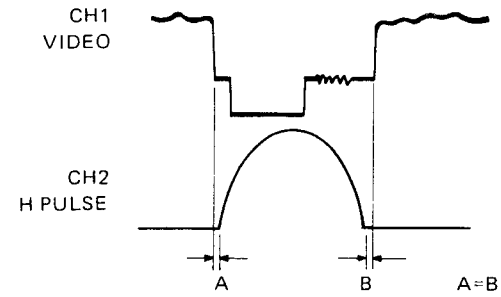
1. When the Flyback pulse width is out of the specification, replace the C19/VF-22 board from the list below so that the pulse width meets the specification.



C19:	1-136-287-11	0.0047μF
	1-136-288-11	0.0051μF
	1-136-289-11	0.0056μF
	1-136-290-11	0.0062μF
	1-136-291-11	0.0068μF
	1-136-292-11	0.0075μF
	1-136-293-11	0.0082μF

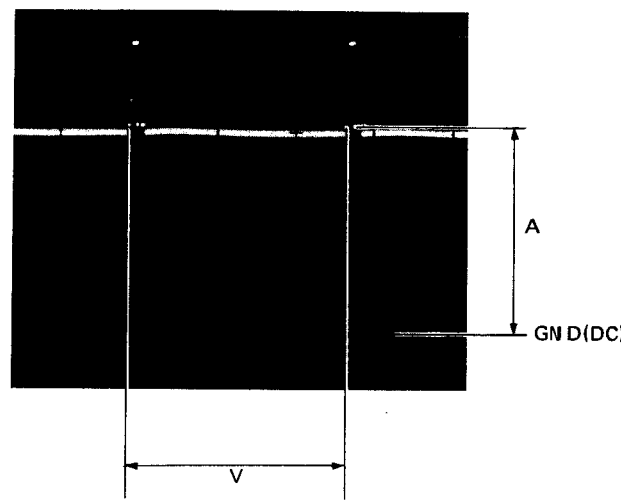
4-6-3. Horizontal Hold Adjustment

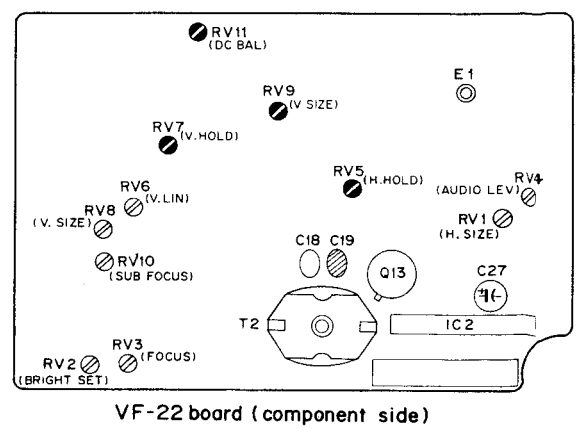
Measuring equipment : Oscilloscope
To be measured : CH1 2 pin of CN7/VF-22 board
CH2 collector of Q13/VF-22 board
Trigger : CH2
To be adjusted : ⊘ RV5/VF-22 board
Specification : A = B



4-6-4. DC Balance Adjustment

Lens : Close
Measuring equipment: Oscilloscope
To be measured : 2 pin of CN2
To be adjusted : ⊘ RV11/VF-22 board
Specification : A = 47 ± 2V



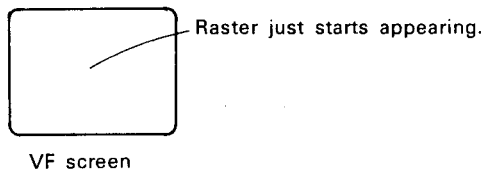


VF-22 board (component side)

4-6-5. Brightness Adjustment

Lens : Close
Preparations : BRIGHT → mechanical center
CONTR → Fully counterclockwise
To be adjusted : RV2/VF-22 board

1. Adjust the RV2/VF-22 board at the point where the raster just starts appearing.

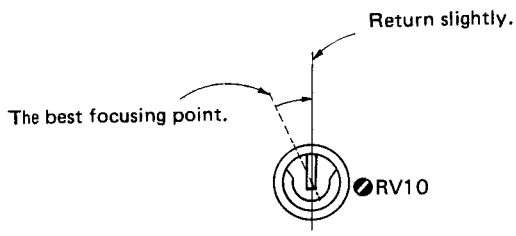


4-6-6. Focus Adjustment

Note: 4-6-8 Picture Frame Adjustment and this adjustment affect each other, so carry out these adjustment alternately until both specifications are satisfied.

Object : Resolution chart
Lens : AUTO/MANU switch → "MANU"
Preparations : S1 WHT CLIP /PR-75 board → OFF
BRIGHT → Mechanical center
CONTR → Fully clockwise
S1 (PEAKING) → OFF
RV10 → Fully clockwise } /VF-22 board

1. Adjust the lens iris so that the video level at TEST OUT terminal is 100%.
2. Adjust the RV3/VF-22 board so that the picture on the CRT is the best focused.
3. S1 (PEAKING) → ON
4. Turn the RV10/VF-22 board counterclockwise until the high peaked edges of the picture are the best focused, then return the RV10 slightly.



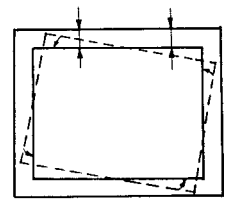
5. Set the S1 (PEAKING) at "OFF" and carry out Step 2. again.

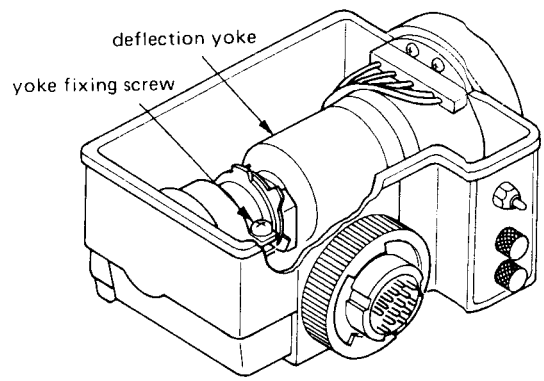
Note: After this adjustment is completed, set the S1 WHT CILP /PR-75 board at "ON".

4-6-7. Deflection Yoke Tilt Adjustment

Adjustment :

1. Loosen the deflection yoke fixing screw and turn the yoke until any inclination on the viewfinder picture is eliminated.
2. After this adjustment is completed, tighten the fixing screw.



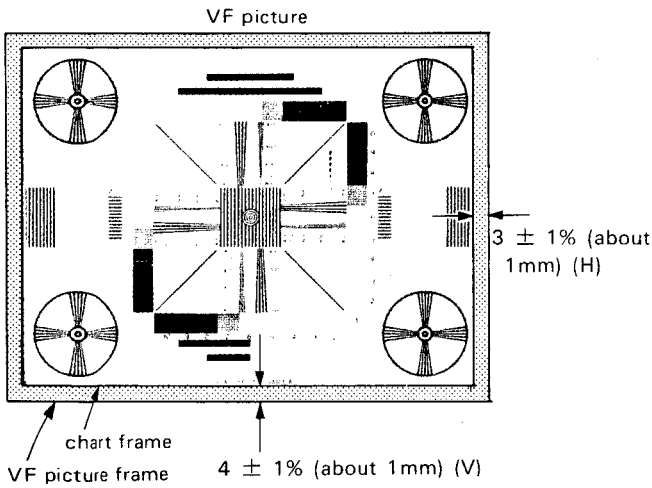


4-6-8. Picture Frame Adjustment

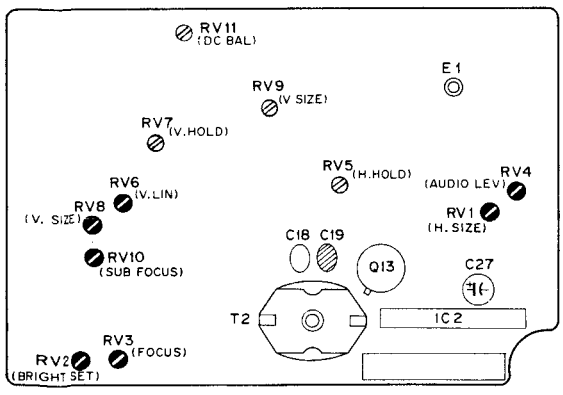
Note: 4-6-6. Focus Adjustment and this adjustment affect each other, so carry out these adjustment alternately untill both specifications are satisfied.

Object : Resolution chart
Preparations : Remove the eyecup from the viewfinder.
S1 (PEAKING)/VF-22 board → OFF
BRIGHT → Mechanical center
CONTR → Mechanical center

1. Adjust the zoom control so that the Resolution chart frame touches the underscanned picture frame on the monitor.
2. Adjust the centering magnet so that the resolution chart is located in the center of the VF picture.
3. Adjust the ⊘ RV4/VF-22 board so that the H size is underscanned 3 ± 1% (about 1mm) from the VF picture frame.
4. Adjust the ⊘ RV8/VF-22 board so that the V size is underscanned 4 ± 1% (about 1mm) from the VF picture frame.



5. Adjust the ⊘ RV6/VF-22 board so that the each circle on the corners of the Resolution chart becomes a true circle.
6. Adjust the cetering magnet again so that the resolution chart is located in the center of the VF picture.
7. Adjust the inclination of the deflection yoke to a horizontal picture.
8. Repeat Step 2 through Step 7 until each specification is satisfied.

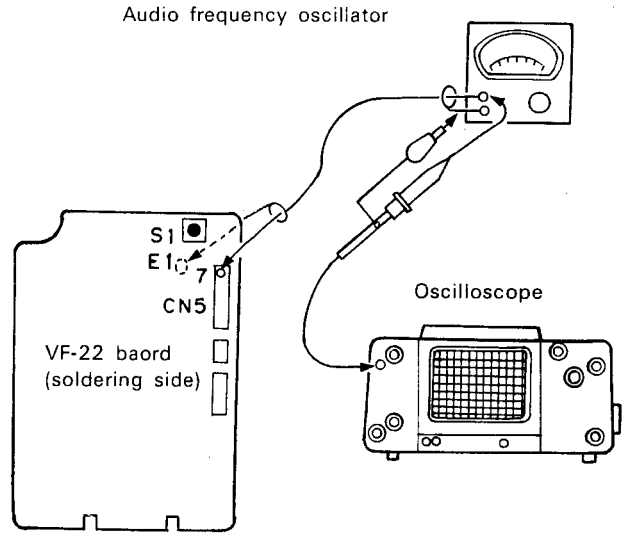


VF-22 board (component side)

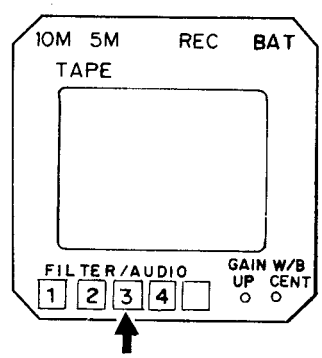
4-6-9. Audio Level Adjustment

Note: This adjustment can non be performed when a VTR (BVV-1APS) is attached. So perform this adjustment with a BVP-3AP alone.

Measuring equipment: Oscilloscope
Audio frequency oscillator
Preparations : AUDIO/FILTER switch → "AUDIO"
ZEBRA/TALLY switch → "OFF (center)"
To be adjusted : ⊘ RV4/VF-22 board
Connection :

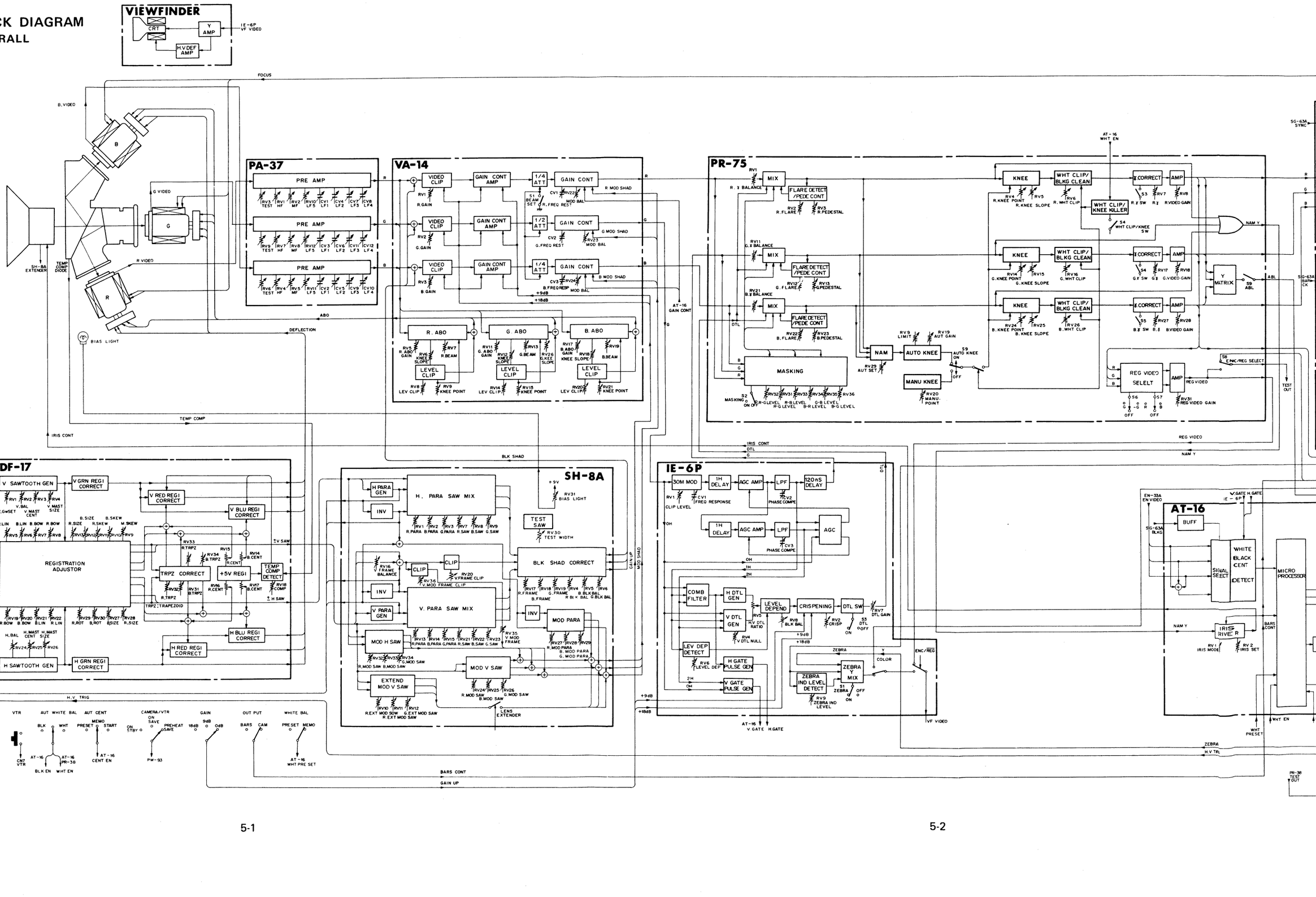


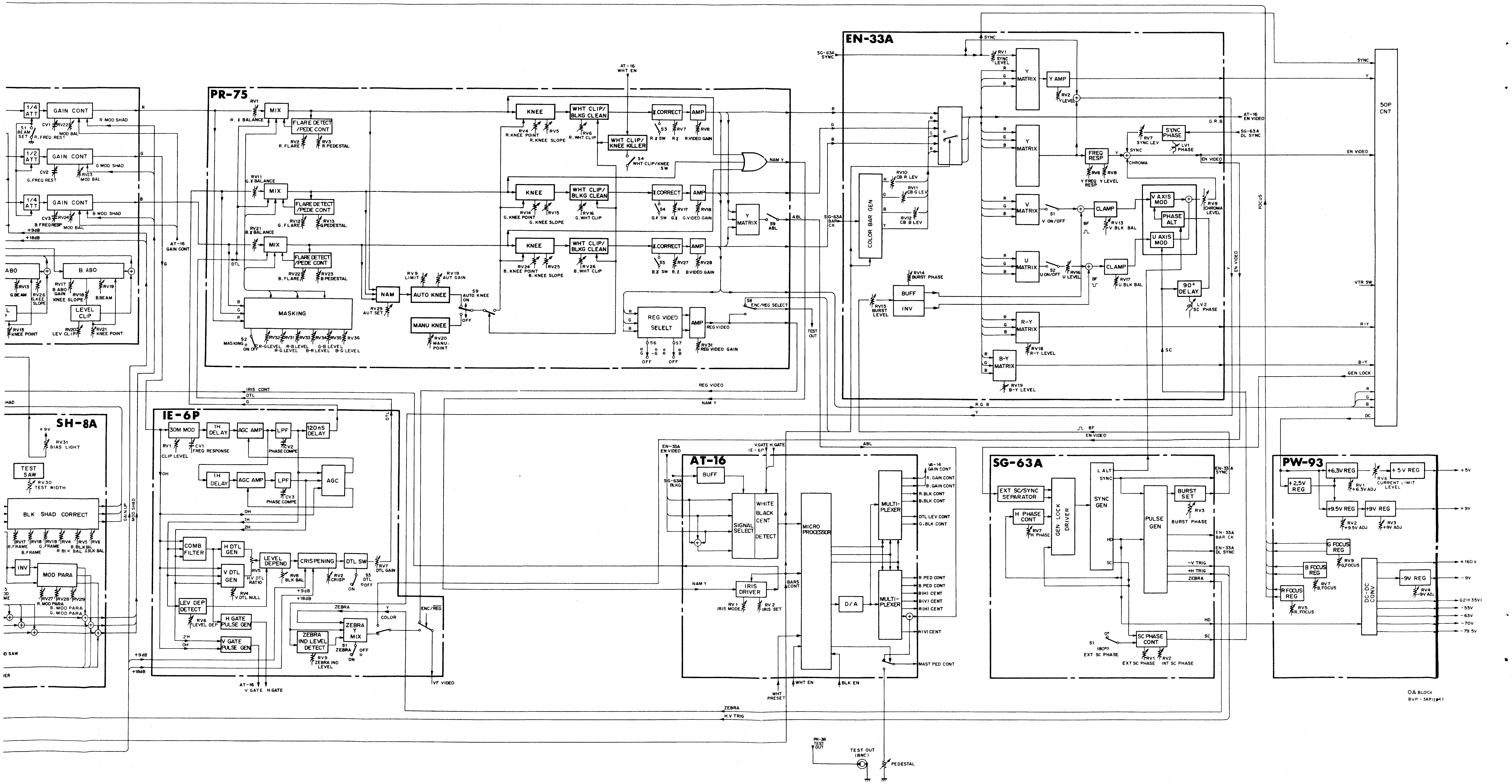
1. Adjust the ⊘ RV4/VF-22 board so that the 3 (LED) on the indication plate of the viewfinder lights up slightly when the sine-wave, 1 KHz, 0.332 Vp-p is fed to pin 7 of CN5, and 3 (LED) goes off when the sine-wave level is reduced to 0.328 Vp-p.



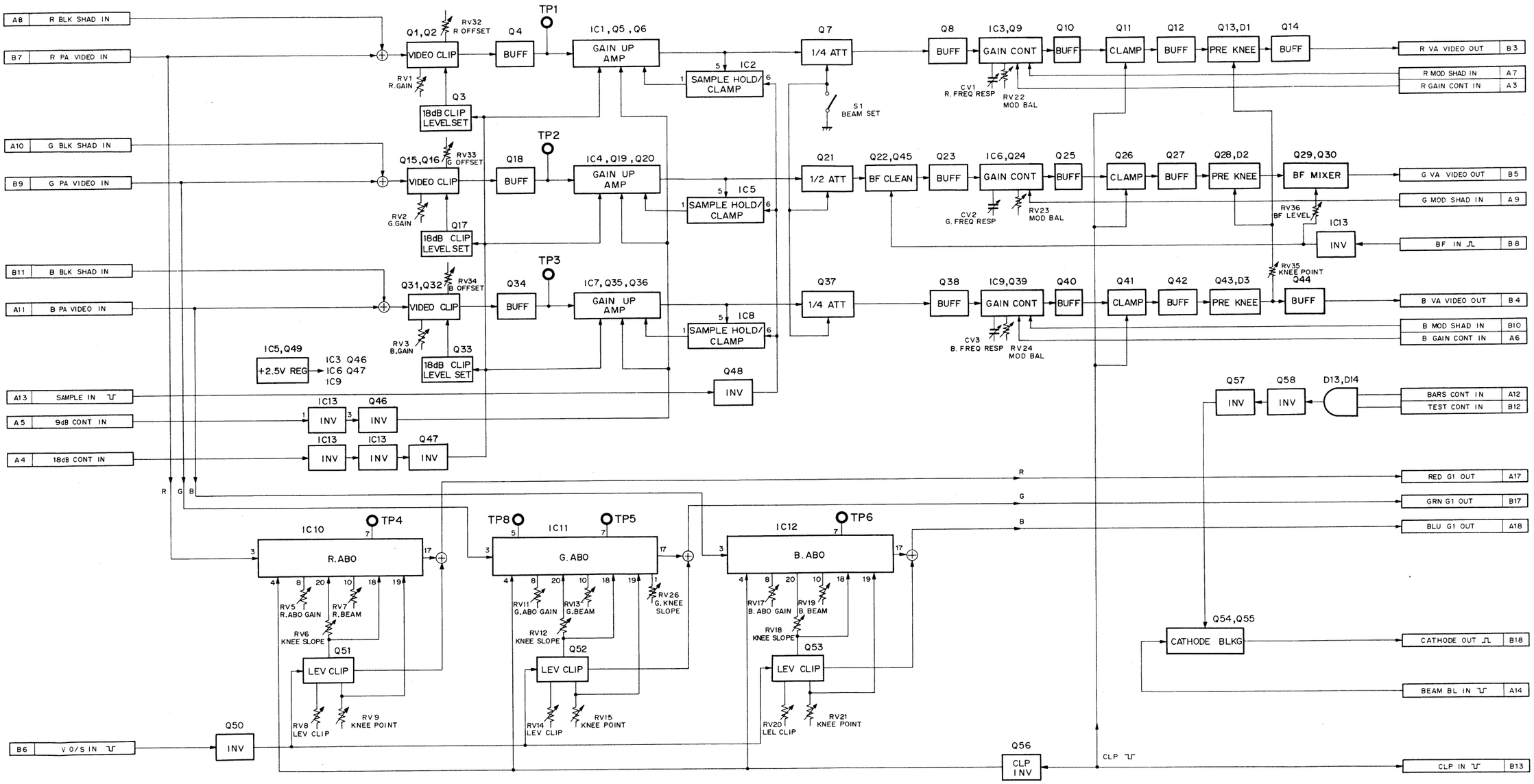
SECTION 5
DIAGRAM

5-1. BLOCK DIAGRAM
OVERALL

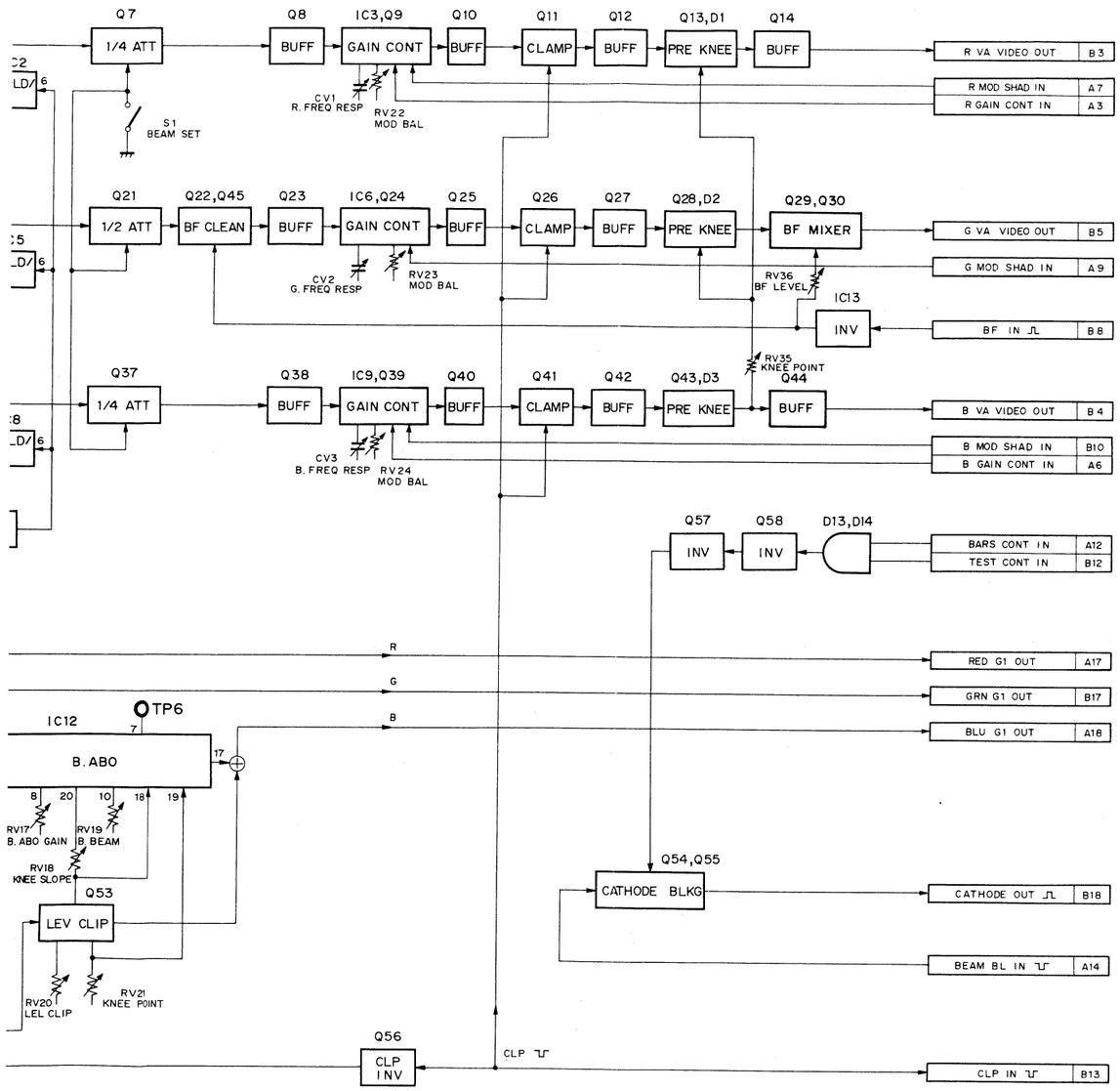



PR-75
SH-8A
IE-6P
EN-33A
AT-16
SG-63A
PW-93
GAIN CONT
MIX
KNEE
WHT CLIP/ BLKG CLEAN
WHT CLIP/ KNEE KILLER
MASKING
NAM
AUTO KNEE
MANU KNEE
REG VIDEO SELELT
AMP
Y MATRIX
BLK SHAD CORRECT
MOD PARA
30M MOD
1H DELAY
AGC AMP
LPF
120nS DELAY
AGC
COMB FILTER
H DTL GEN
V DTL GEN
LEVEL DEPEND
CRISPENING
DTL SW
LEV DEP DETECT
H GATE PULSE GEN
V GATE PULSE GEN
ZEBRA IND LEVEL DETECT
ZEBRA Y MIX
COLOR BAR GEN
BUFF
INV
Y AMP
FREQ RESP
SYNC PHASE
CLAMP
V AXIS MOD
PHASE ALT
U AXIS MOD
90° DELAY
R-Y MATRIX
B-Y MATRIX
SIGNAL SELECT
WHITE BLACK CENT DETECT
IRIS DRIVER
MICRO PROCESSOR
D/A
MULTI-PLEXER
EXT SC/SYNC SEPARATOR
H PHASE CONT
GEN LOCK DRIVER
SYNC GEN
PULSE GEN
BURST SET
SC PHASE CONT
+2.5V REG
+6.3V REG
+5 V REG
+9.5V REG
+9V REG
G FOCUS REG
B FOCUS REG
R FOCUS REG
DC-DC CONV
-9V REG
50P CN7
TEST OUT (BNC)
PEDESTAL
OA BLOCK

VA-14 BOARD

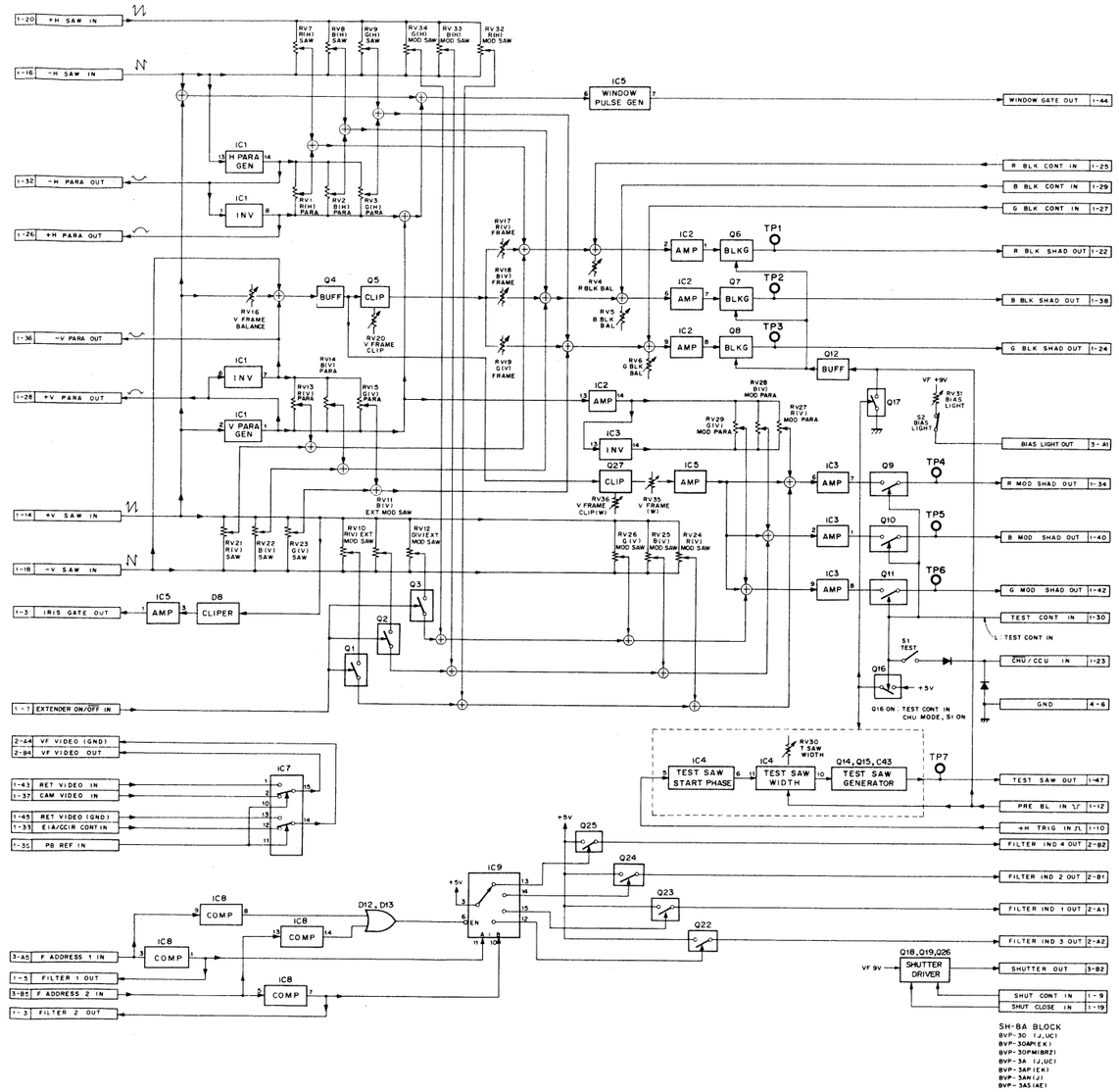


VA – 14 BLOCK
BVP-3A (J,UC)
BVP-3AP (EK)
BVP-3AN(J)



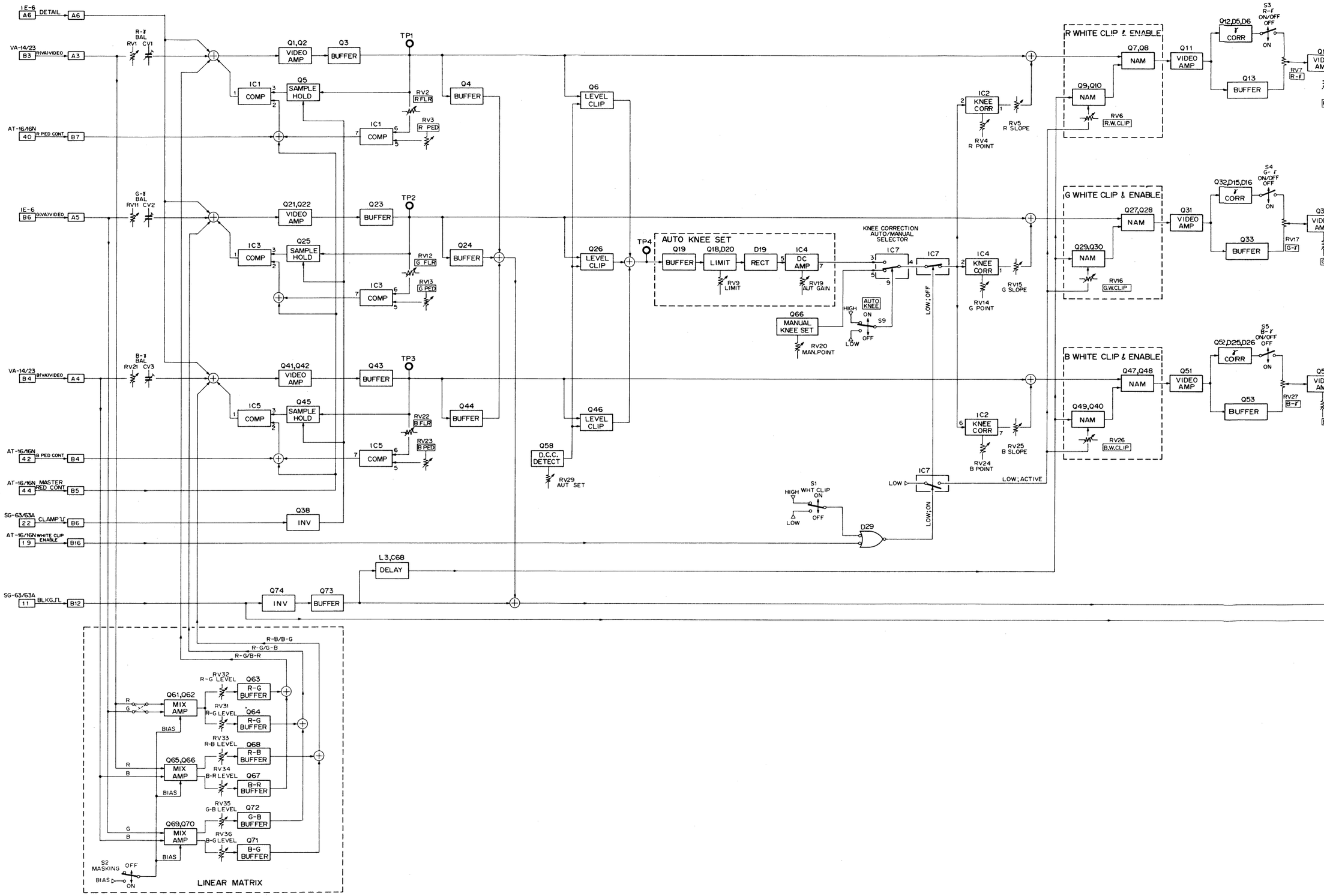
VA - 14 BLOCK
BVP-3A (J,UC)
BVP-3AP(EK)
BVP-3AN(J)

SH-8A BOARD

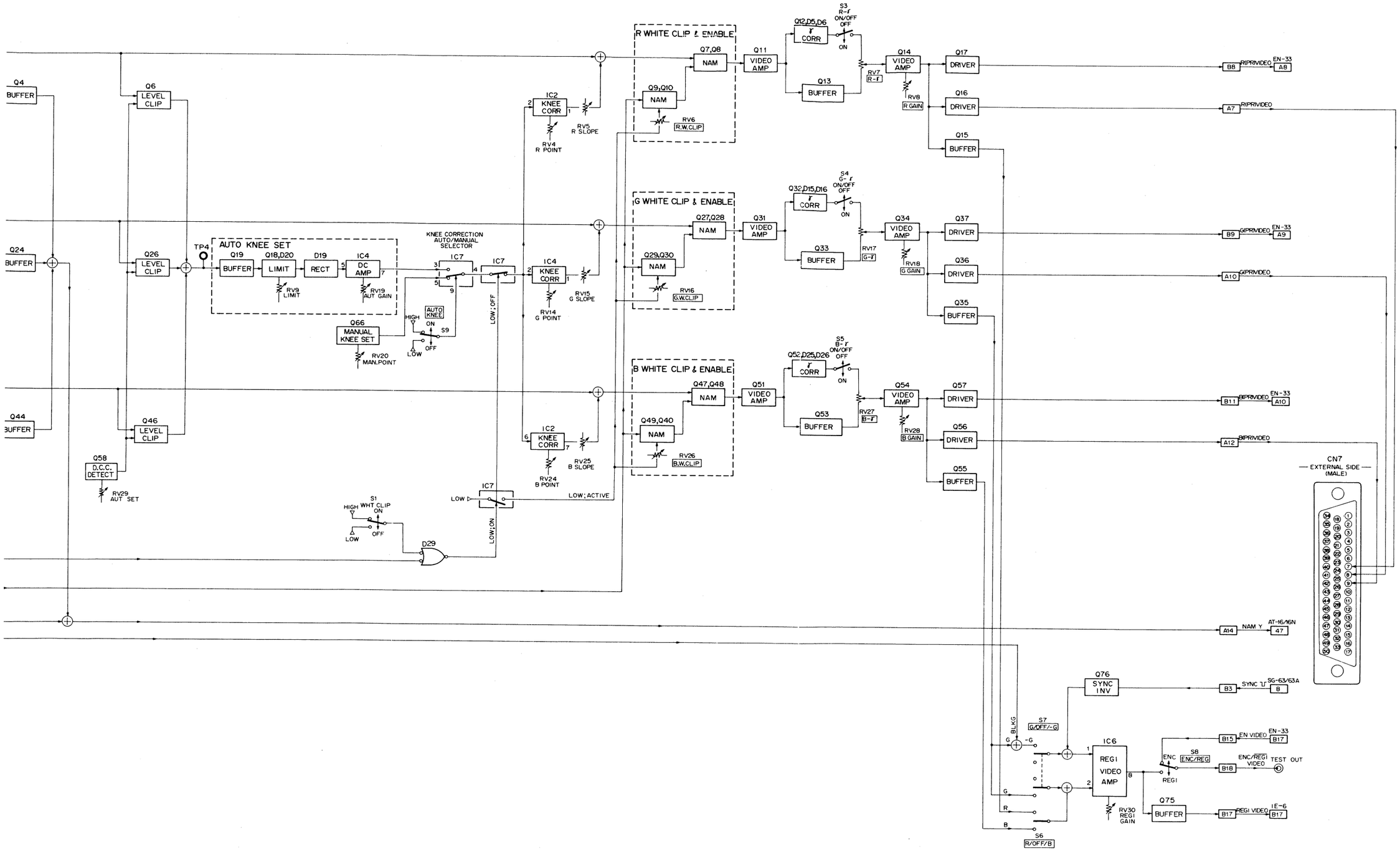


SH-8A BLOCK
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AP(EK)
BVP-3AN(J)
BVP-3AS(AE)

PR-75 BOARD


1E-6 A6 DETAIL
VA-14/23 B3 R(VA)VIDEO
AT-16/16N 40 R PED CONT.
1E-6 B6 G(VA)VIDEO
VA-14/23 B4 B(VA)VIDEO
AT-16/16N 42 B PED CONT.
AT-16/16N 44 MASTER RED CONT.
SG-63/63A 22 CLAMP
AT-16/16N 19 WHITE CLIP ENABLE
SG-63/63A 11 BLKG.
R-Y BAL RV1 CV1
G-Y BAL RV11 CV2
B-Y BAL RV21 CV3
Q1,Q2 VIDEO AMP
Q3 BUFFER
Q4 BUFFER
Q5 SAMPLE HOLD
IC1 COMP
RV2 R FLR
RV3 R PED
Q21,Q22 VIDEO AMP
Q23 BUFFER
Q24 BUFFER
Q25 SAMPLE HOLD
IC3 COMP
RV12 G FLR
RV13 G PED
Q41,Q42 VIDEO AMP
Q43 BUFFER
Q44 BUFFER
Q45 SAMPLE HOLD
IC5 COMP
RV22 B FLR
RV23 B PED
Q38 INV
TP1
TP2
TP3
TP4
Q6 LEVEL CLIP
Q26 LEVEL CLIP
Q46 LEVEL CLIP
Q58 D.C.C. DETECT
RV29 AUT SET
AUTO KNEE SET
Q19 BUFFER
Q18,D20 LIMIT
RV9 LIMIT
D19 RECT
IC4 DC AMP
RV19 AUT GAIN
Q66 MANUAL KNEE SET
RV20 MAN.POINT
KNEE CORRECTION AUTO/MANUAL SELECTOR
IC7
AUTO KNEE ON
S9
HIGH
LOW
OFF
LOW:OFF
IC2 KNEE CORR
RV4 R POINT
RV5 R SLOPE
IC4 KNEE CORR
RV14 G POINT
RV15 G SLOPE
IC2 KNEE CORR
RV24 B POINT
RV25 B SLOPE
LOW:ACTIVE
LOW:ON
S1 WHT CLIP ON
D29
L3,C68 DELAY
Q74 INV
Q73 BUFFER
R WHITE CLIP & ENABLE
Q7,Q8 NAM
Q9,Q10 NAM
RV6 R.W.CLIP
Q11 VIDEO AMP
Q12,D5,D6 CORR
Q13 BUFFER
S3 R-Y ON/OFF
RV7 R-Y
G WHITE CLIP & ENABLE
Q27,Q28 NAM
Q29,Q30 NAM
RV16 G.W.CLIP
Q31 VIDEO AMP
Q32,D15,D16 CORR
Q33 BUFFER
S4 G-Y ON/OFF
RV17 G-Y
B WHITE CLIP & ENABLE
Q47,Q48 NAM
Q49,Q40 NAM
RV26 B.W.CLIP
Q51 VIDEO AMP
Q52,D25,D26 CORR
Q53 BUFFER
S5 B-Y ON/OFF
RV27 B-Y
R-B/B-G
R-G/G-B
R-G/B-R
RV32 R-G LEVEL
Q63 R-G BUFFER
Q61,Q62 MIX AMP
RV31 R-G LEVEL
Q64 R-G BUFFER
RV33 R-B LEVEL
Q68 R-B BUFFER
Q65,Q66 MIX AMP
RV34 B-R LEVEL
Q67 B-R BUFFER
RV35 G-B LEVEL
Q72 G-B BUFFER
Q69,Q70 MIX AMP
RV36 B-G LEVEL
Q71 B-G BUFFER
BIAS
S2 MASKING OFF ON
LINEAR MATRIX

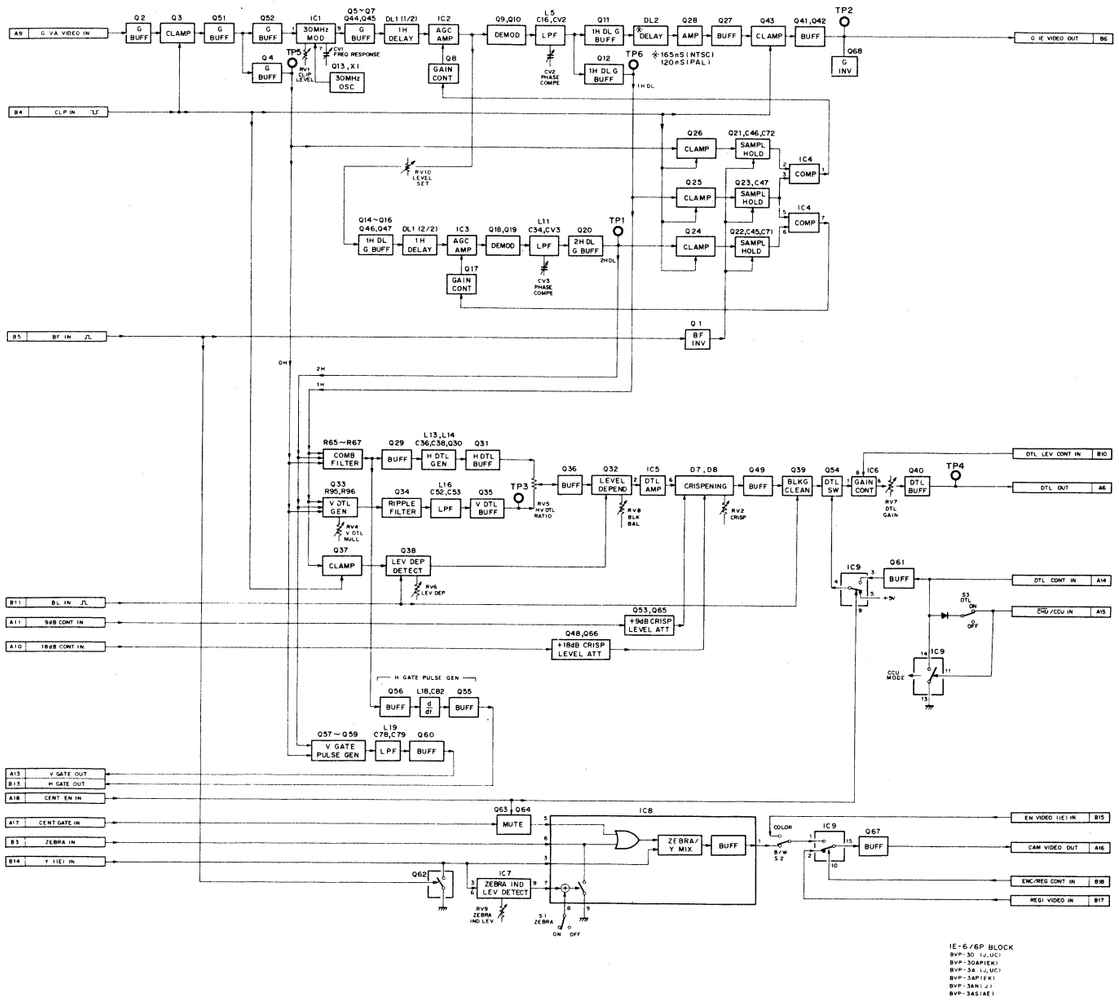
PR-75B.D



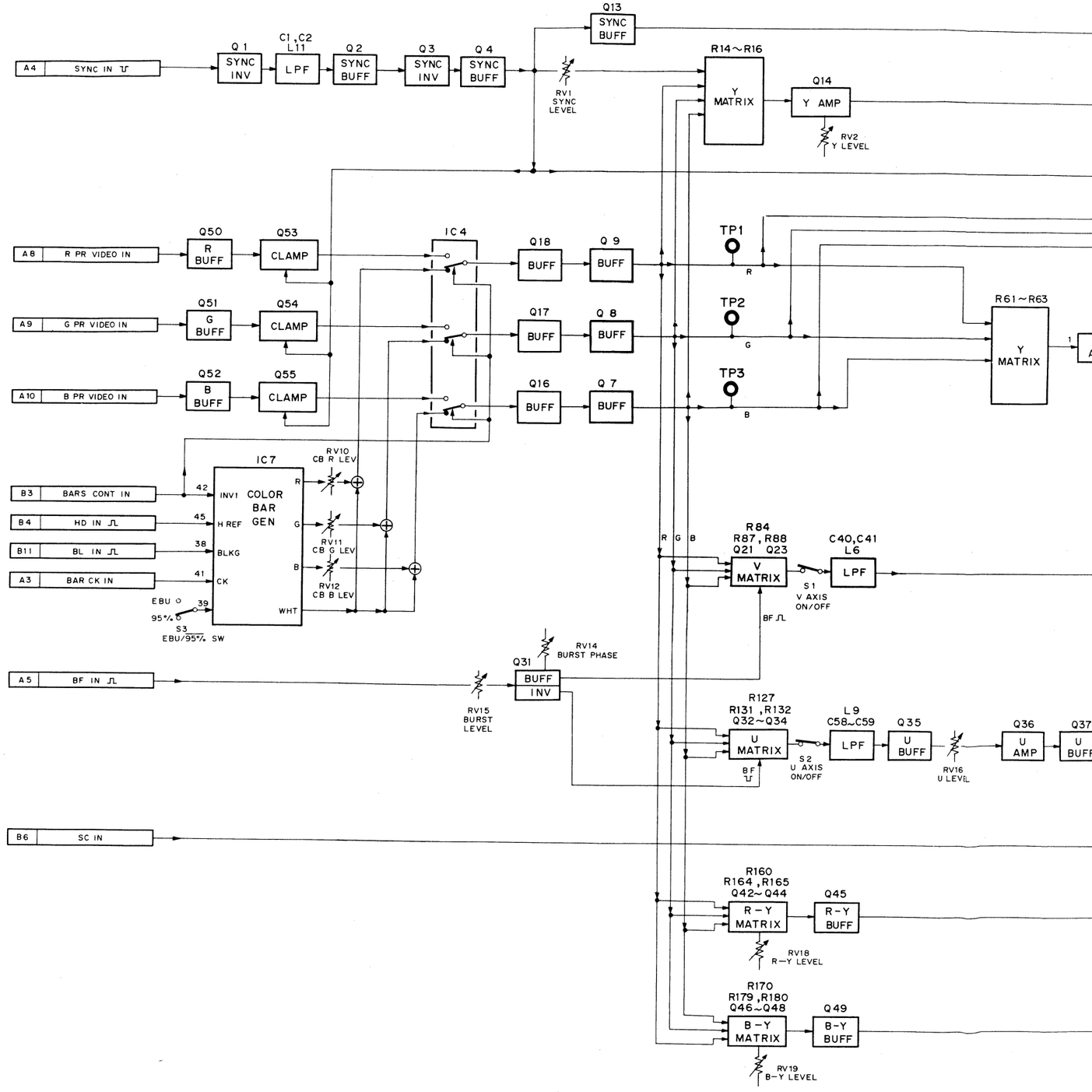
PR-75 BLOCK

BVP-3A (J,UC)
BVP-3AP (EK)
BVP-3AN (J)
BVP-3AS (AE)
BVP-30 (J,UC)
BVP-30AP (EK)

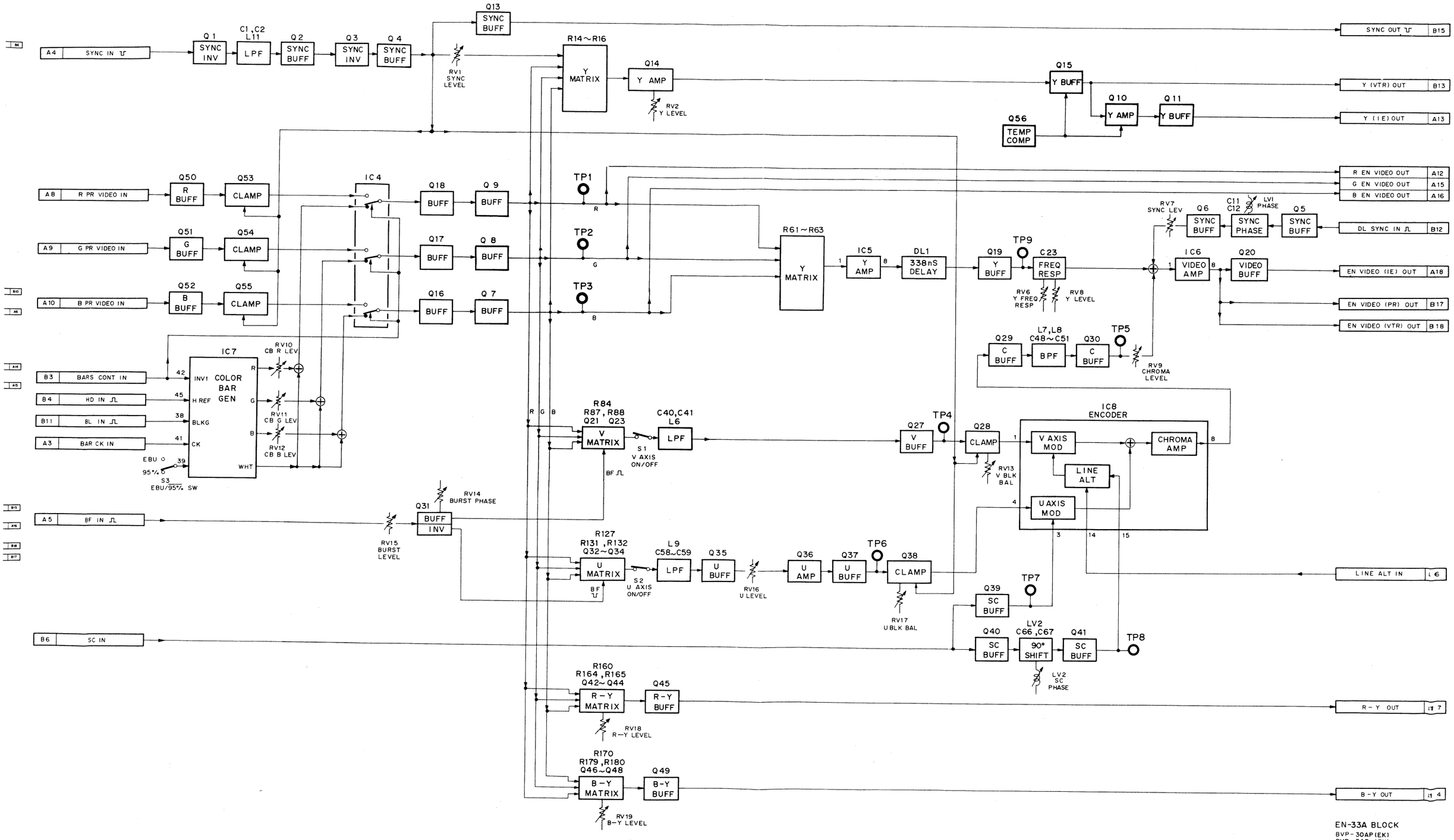
IE-6P BOARD



EN-33A BOARD

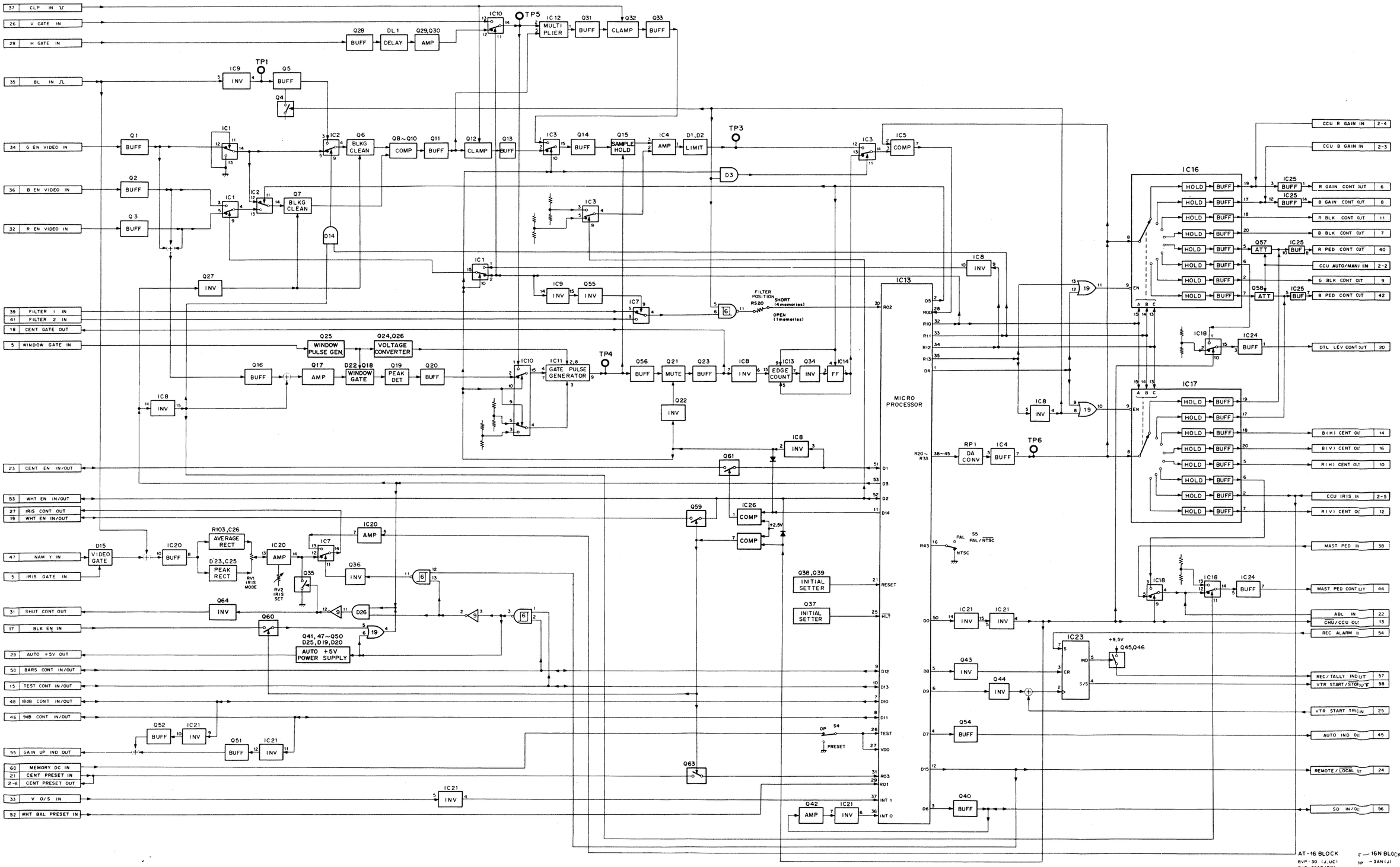


EN-33A BOARD



EN-33A BLOCK
BVP-30AP(EK)
BVP-3AP (EK)

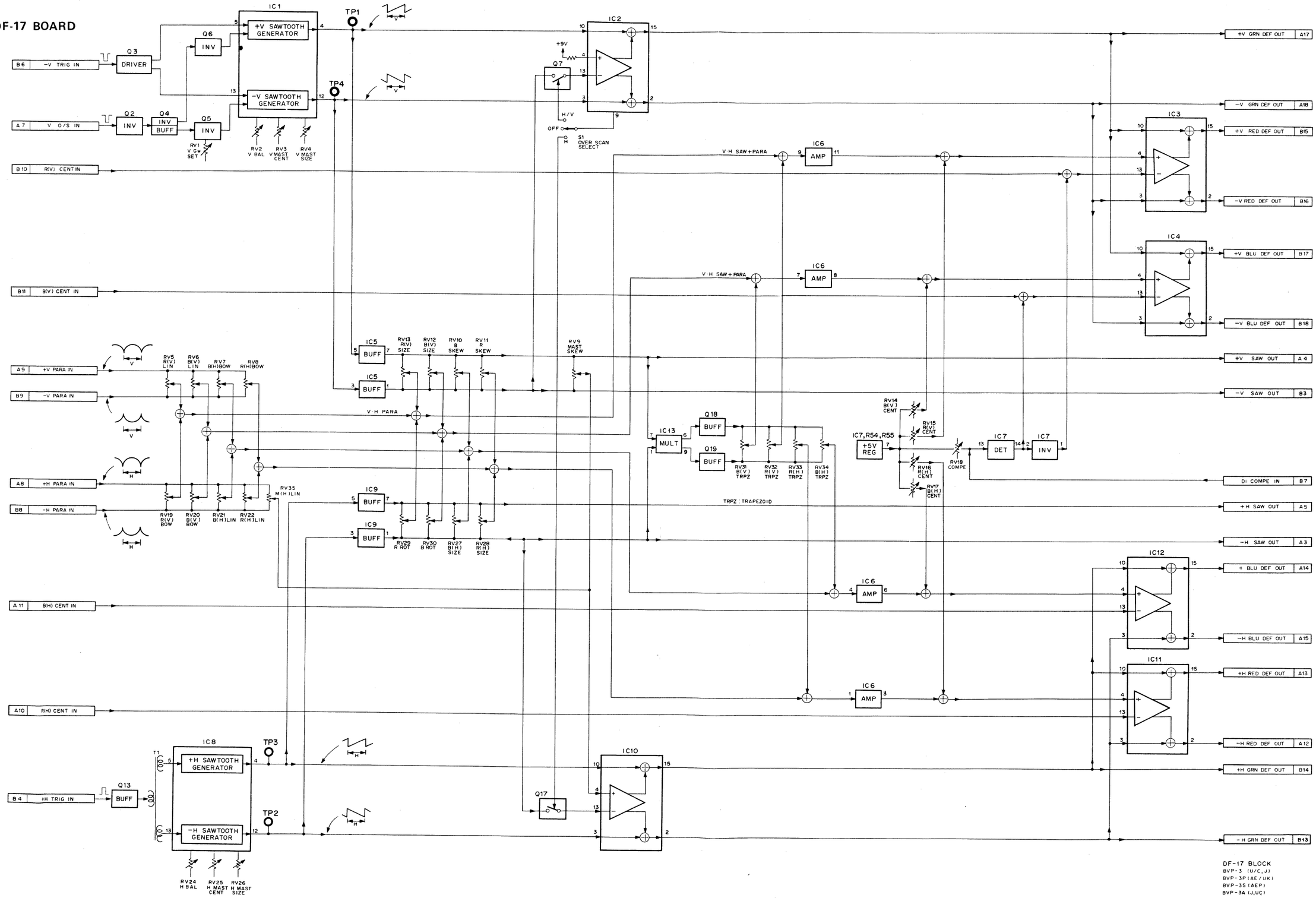
AT-16/16N BOARD



AT-16 BLOCK
BVP-30 (J,UC)
BVP-30AP(EX)
BVP-30PM(BRZ)
CA-30(J,UC)
CA-30P(EX)
BVP-3A(J,UC)
BVP-3AP(EX)
BVP-3AS(AE)

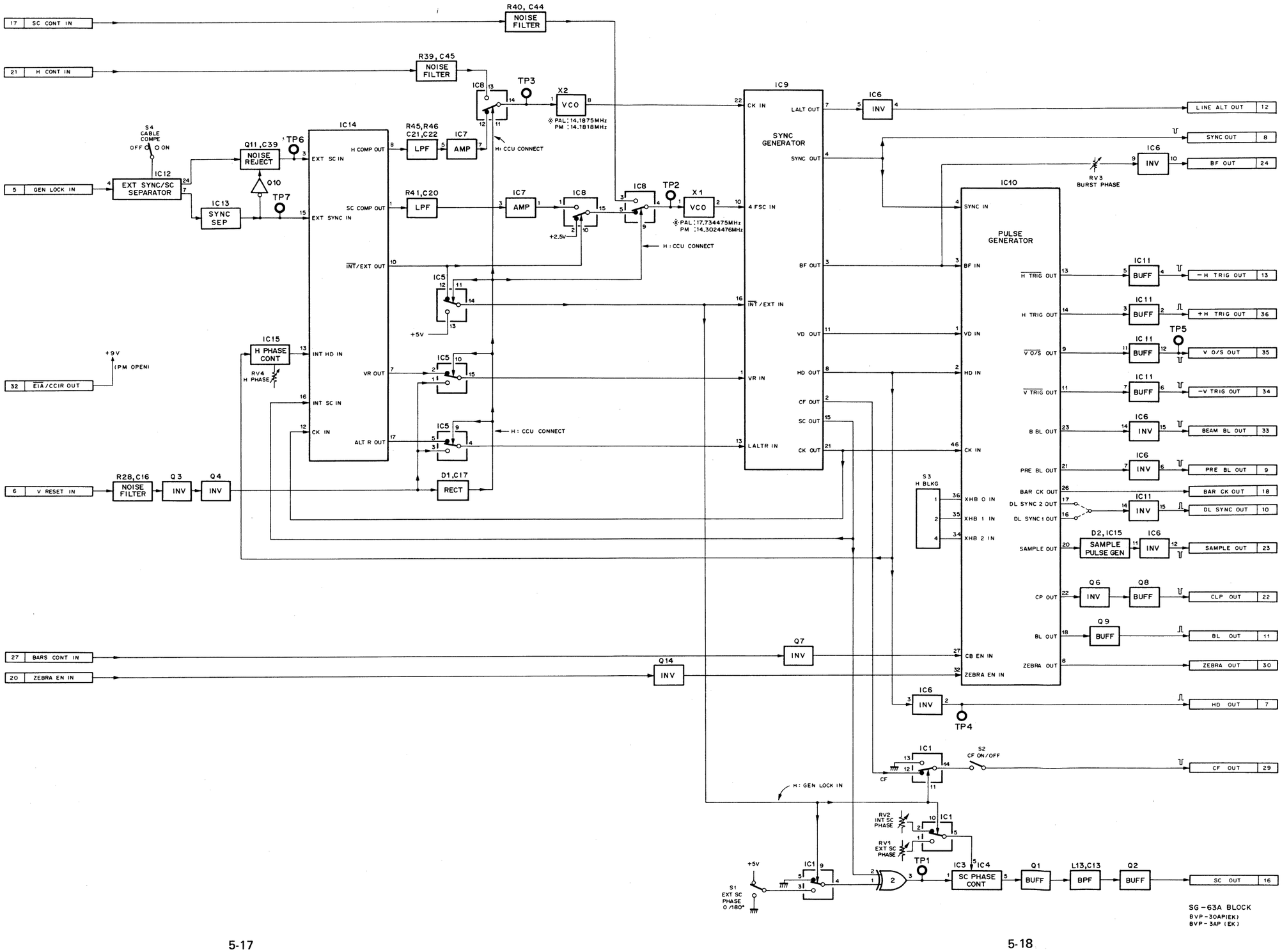
16N BLOCK
-3AN(J)

DF-17 BOARD



DF-17 BLOCK
BVP-3 (U/C,J)
BVP-3P(AE/UK)
BVP-3S(AEP)
BVP-3A(J,UC)
BVP-3AP(EK)
BVP-3AN(J)

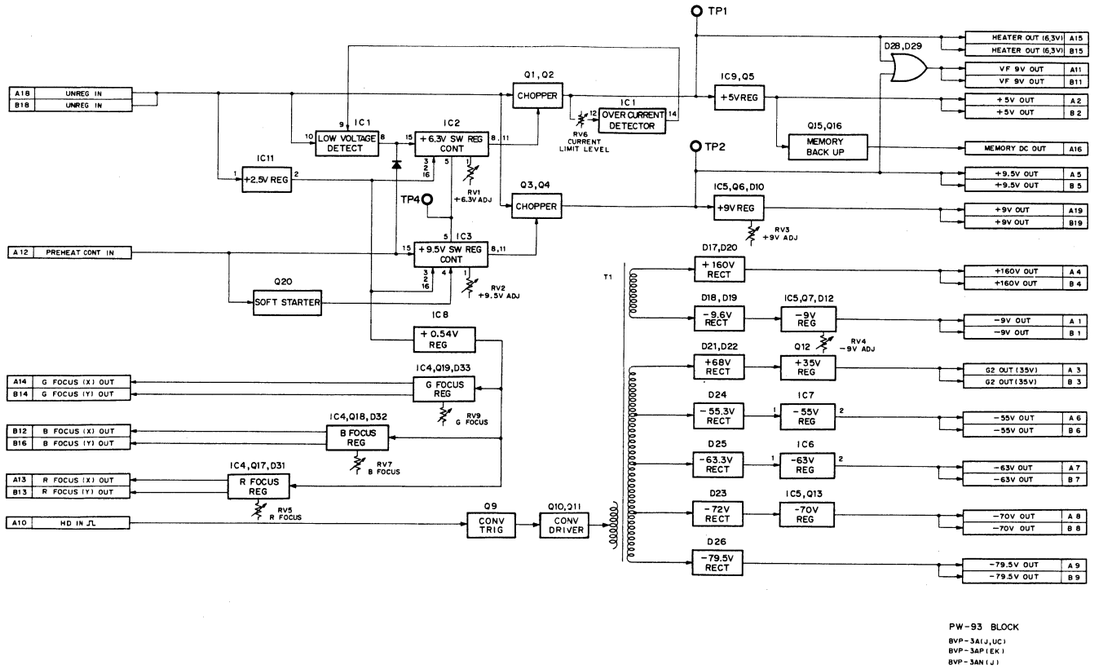
SG-63A BOARD



SG-63A BLOCK
BVP-30AP(EK)
BVP-3AP (EK)

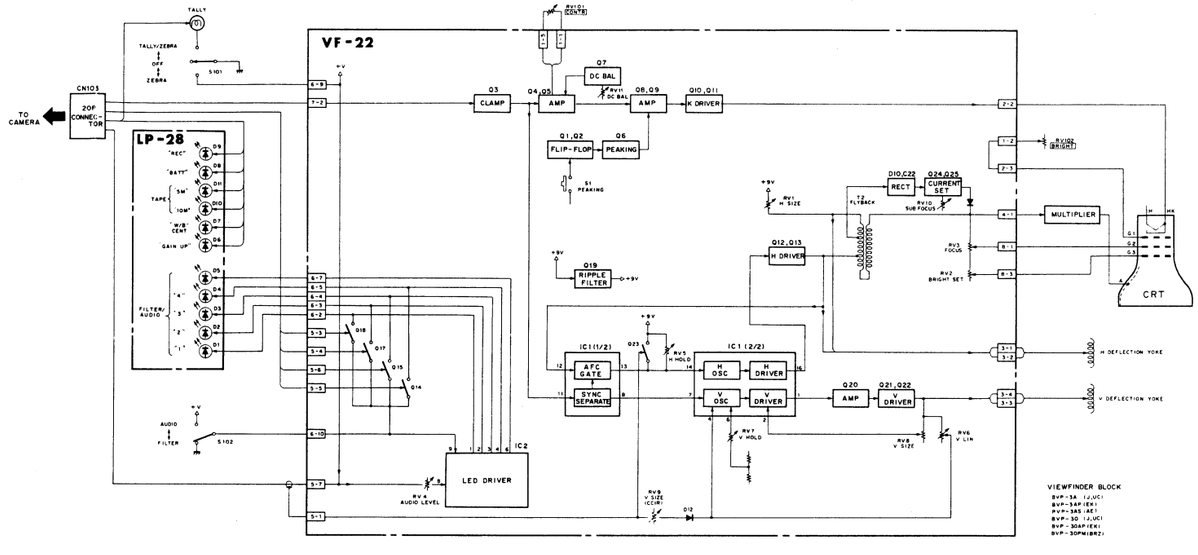
PW-93 B.D VF B.D

PW-93 BOARD

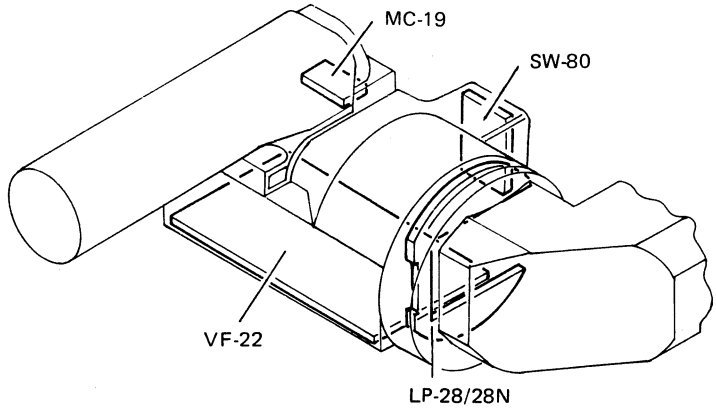


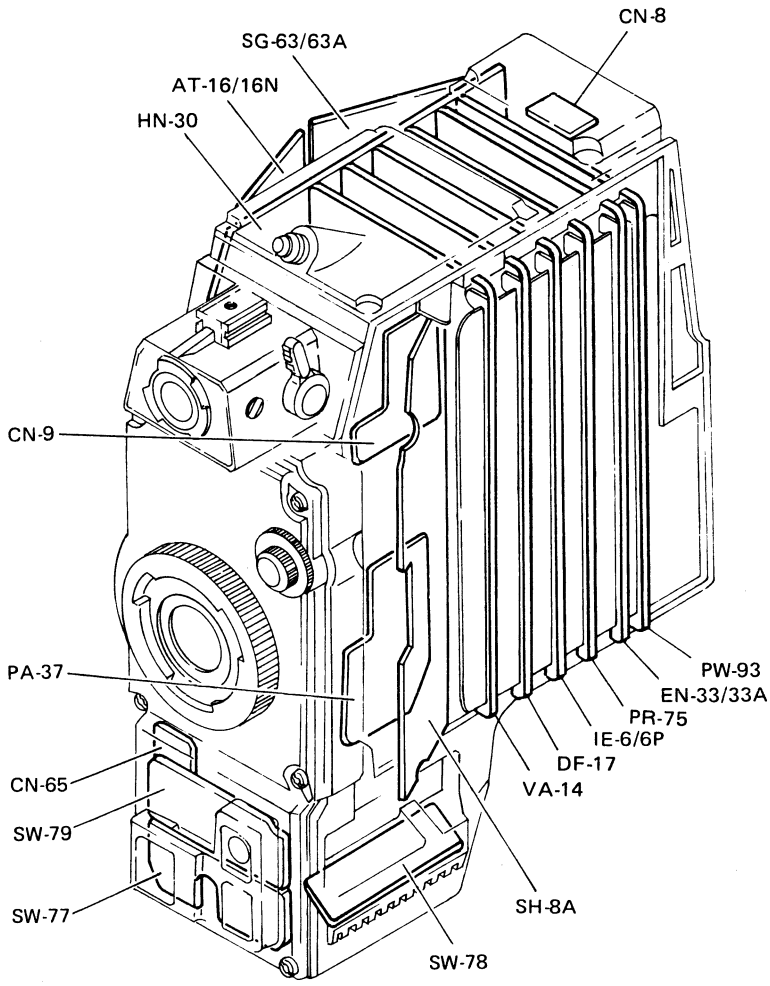
PW-93 BLOCK
BVP-3A(J,UC)
BVP-3AP(EX)
BVP-3AN(J)

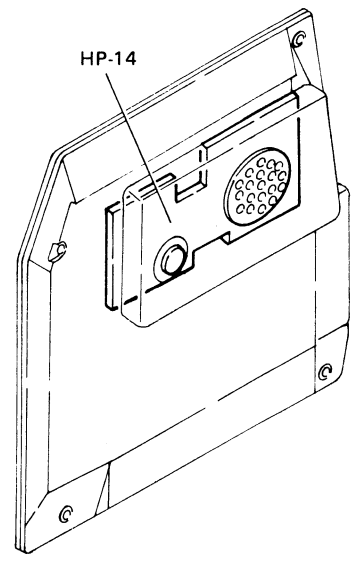
VIEWFINDER



5-2. MOUNTING DIAGRAM AND SCHEMATIC DIAGRAM
LOCATION OF MOUNTED CIRCUIT BOARD



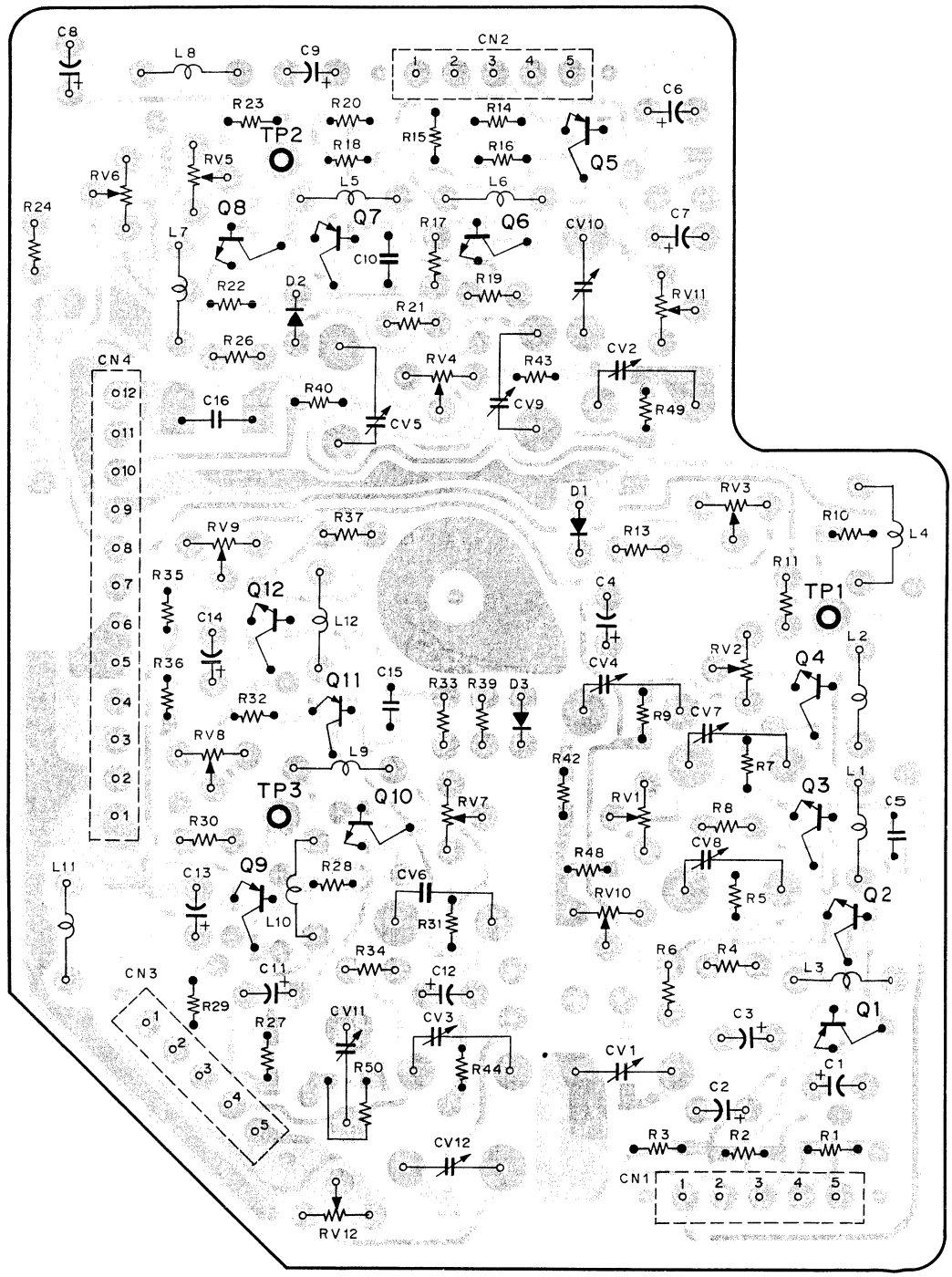




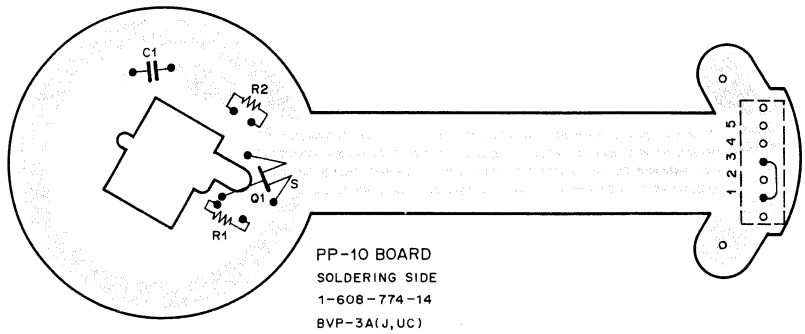
PA-37, PP-10

PARTS NO. 1-612-380-13

PA-37 BOARD
– SOLDERING SIDE –



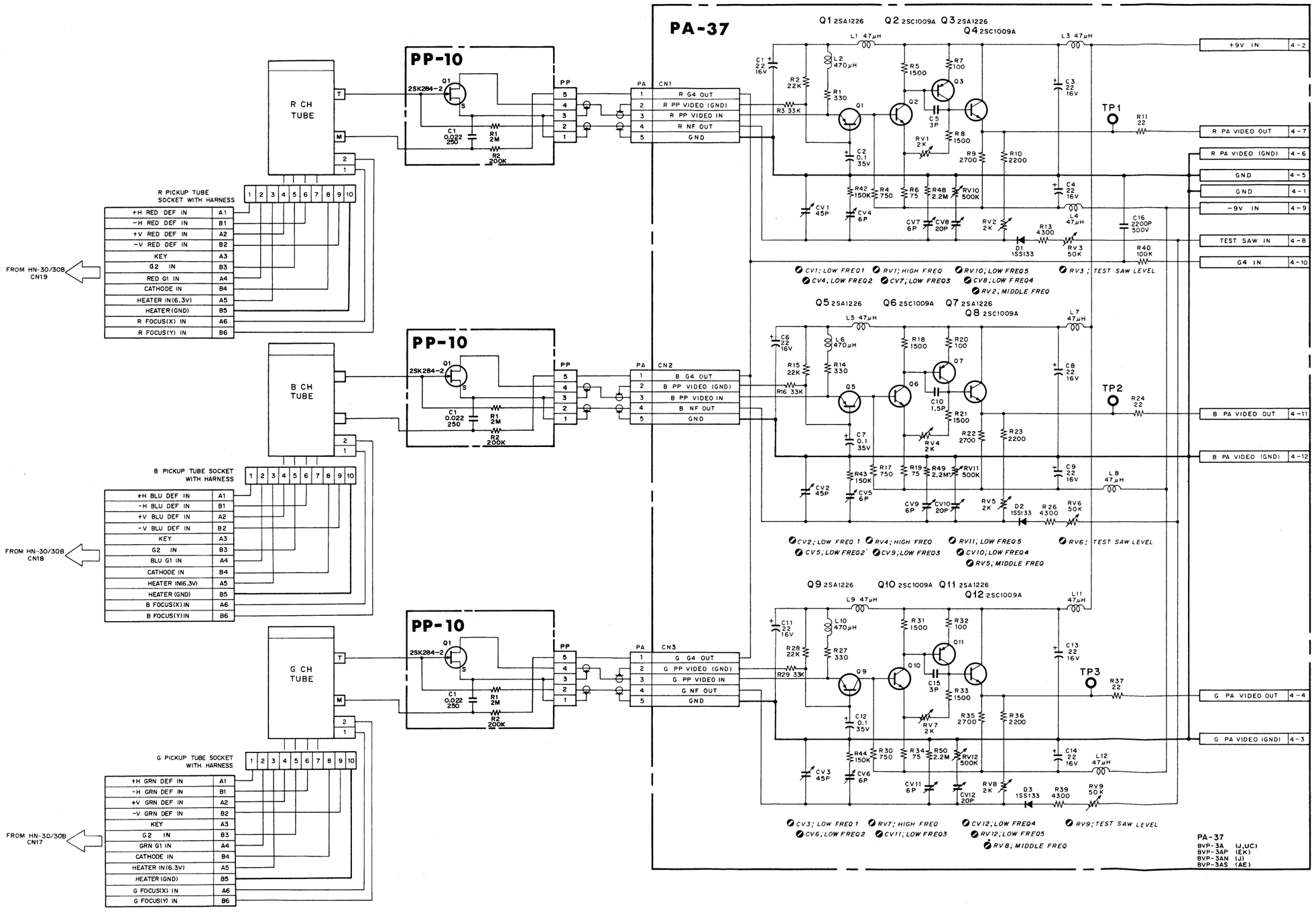
PP-10 BOARD
– SOLDERING SIDE –



PP-10 BOARD
SOLDERING SIDE
1-608-774-14
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

PA-37 BOARD
SOLDERING SIDE
1-612-380-13
BVP-30 (J, UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J, UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

PA-37 BOARD
PP-10 BOARD

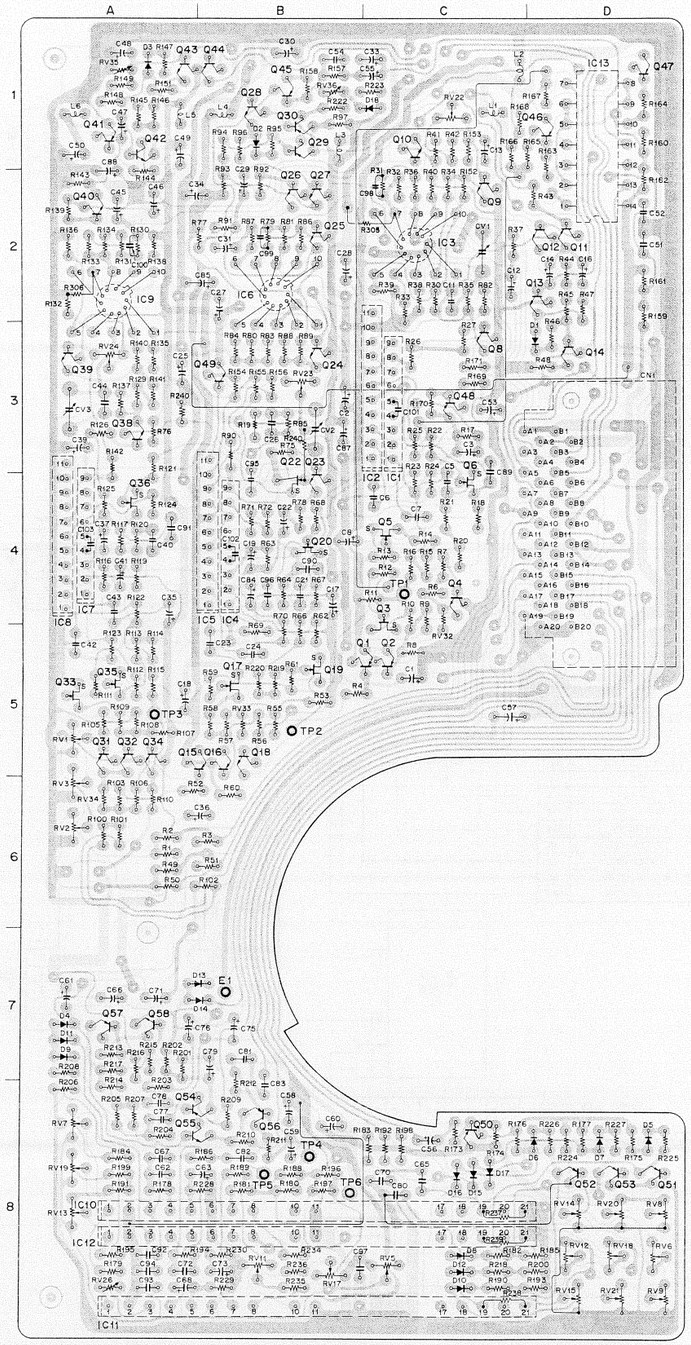


VA-14

VA-14 BOARD

-- SOLDERING SIDE --

PARTS No. 1-608-884-15



CN1 D-4

CV1 C-2
CV2 B-3
CV3 A-3

D1 D-3
D2 B-1
D3 A-1
D4 A-7
D5 D-8
D6 D-8
D7 D-8
D8 C-8
D9 A-7
D10 C-8
D11 A-7
D12 C-8
D13 B-7
D14 B-7
D15 C-8
D16 C-8
D17 C-8
D18 C-1

E1 B-7

IC1 C-3
IC2 C-3
IC3 C-2
IC4 B-4
IC5 B-4
IC6 B-2
IC7 A-4
IC8 A-4
IC9 A-2
IC10 B-8
IC11 B-8
IC12 B-8
IC13 D-1

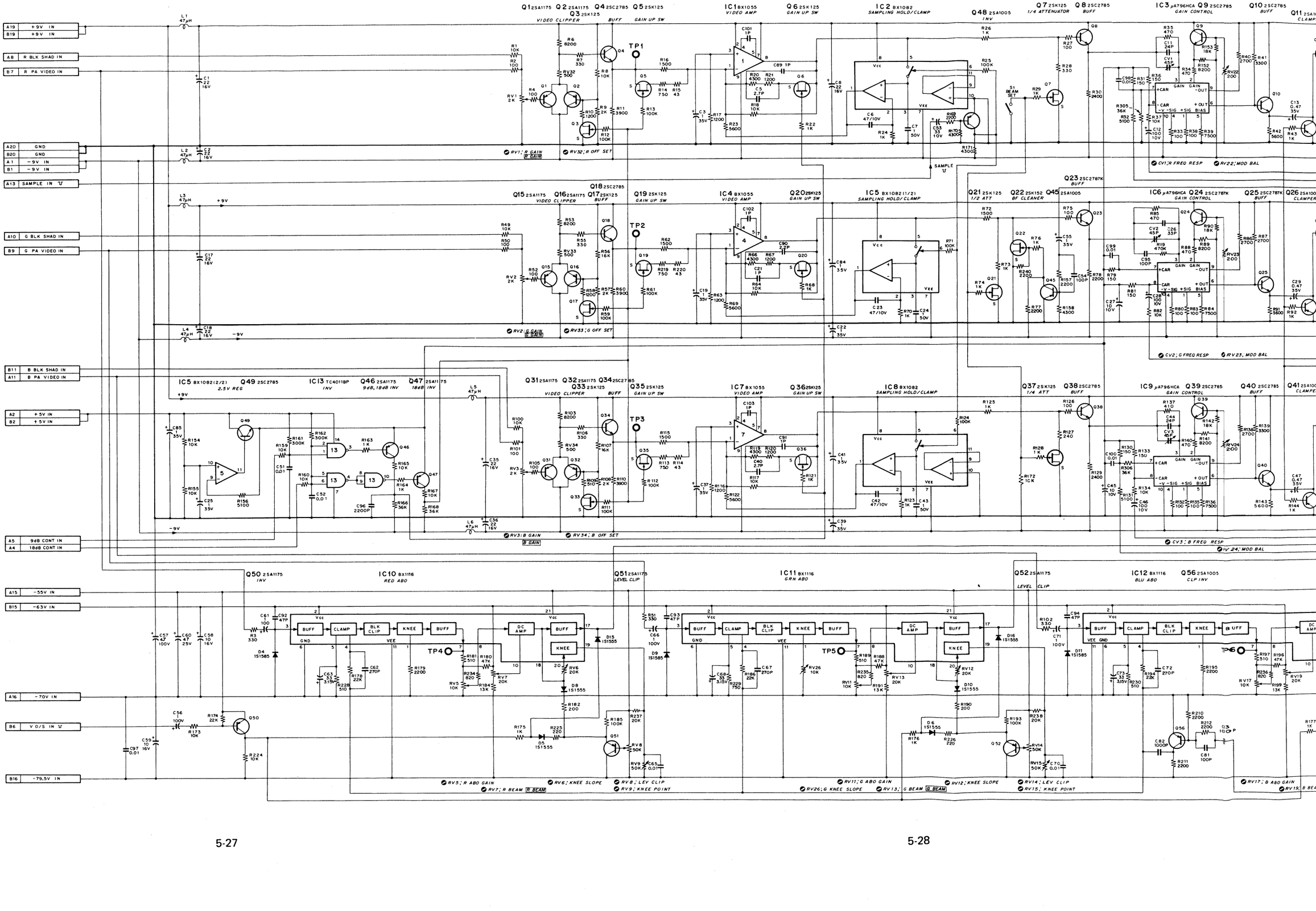
Q1 C-5
Q2 C-5
Q3 C-4
Q4 C-4
Q5 C-4
Q6 C-3
Q8 C-2
Q9 C-1
Q10 C-1
Q11 D-2
Q12 D-2
Q13 D-2
Q14 D-3
Q15 B-5
Q16 B-5
Q17 B-5
Q18 B-5
Q19 B-5
Q20 B-4
Q22 B-4
Q23 B-4
Q24 B-3
Q25 B-2
Q26 B-2
Q27 B-2
Q28 B-1
Q29 B-1
Q30 B-1
Q31 A-5
Q32 A-5
Q33 A-5
Q34 A-5
Q35 A-5
Q36 A-4
Q38 A-3
Q39 A-3
Q40 A-2
Q41 A-1
Q42 A-1
Q43 A-1
Q44 B-1
Q45 B-1
Q46 D-1
Q47 D-1
Q48 C-3
Q49 B-3
Q50 C-8
Q51 D-8
Q52 D-8
Q53 D-8
Q54 B-8
Q55 B-8
Q56 B-8
Q57 A-7
Q58 A-7

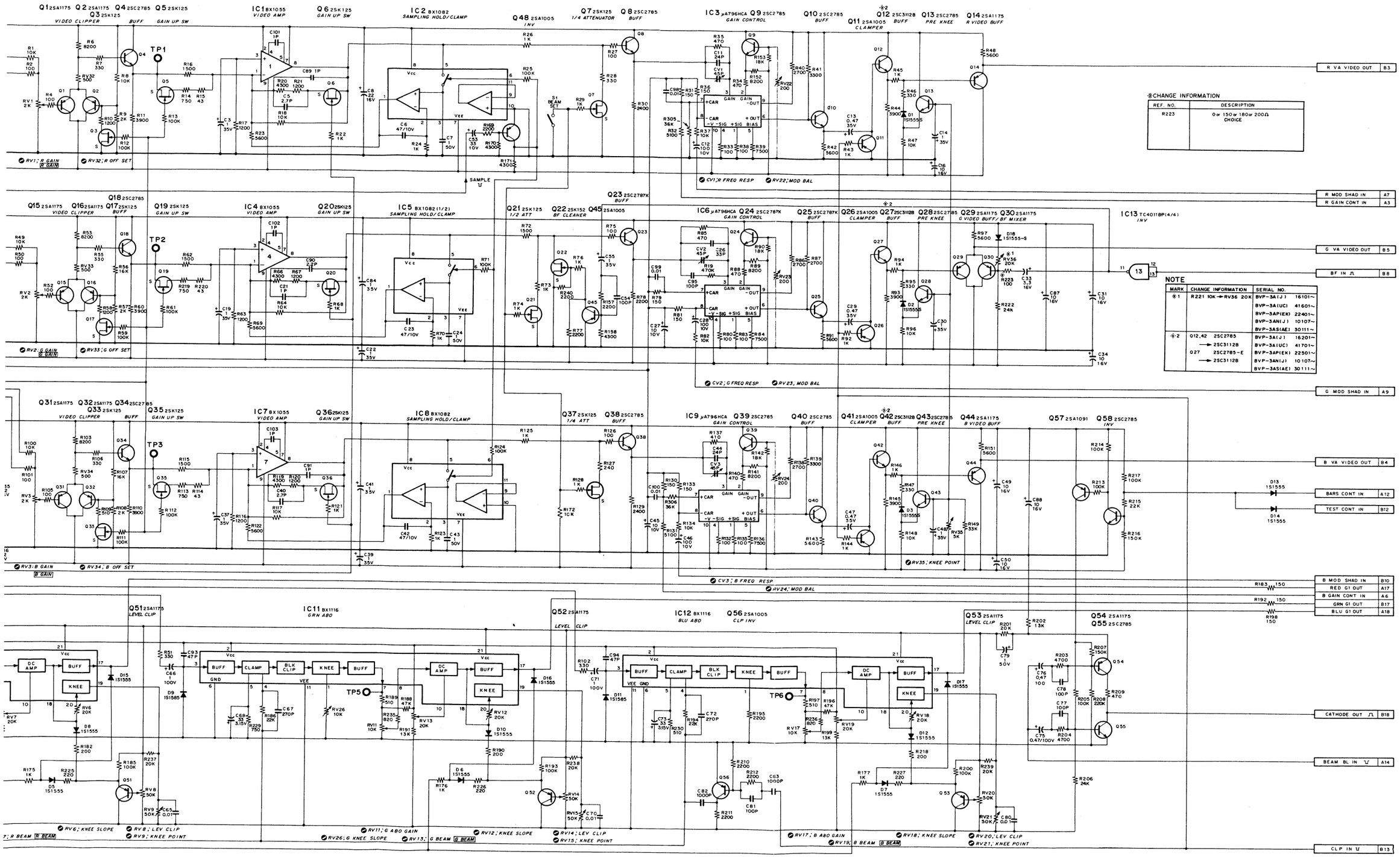
RV1 A-5
RV2 A-6
RV3 A-6
RV5 B-8
RV6 D-8
RV7 A-8
RV8 D-8
RV9 D-8
RV11 B-8
RV12 D-8
RV13 A-8
RV14 D-8
RV15 D-8
RV17 B-8
RV18 D-8
RV19 A-8
RV20 D-8
RV21 D-8
RV23 B-3
RV24 A-3
RV26 A-8
RV32 C-4
RV33 B-5
RV34 A-6
RV35 A-1
RV36 B-1

TP1 C-4
TP2 B-5
TP3 A-5
TP4 B-8
TP5 B-8
TP6 C-8
TP8 A-8

VA-14 BOARD
1-608-884-15
BVP-3
BVP-3P
BVP-35
BVP-5A(J,UC)
BVP-5AN(J)
BVP-5AP(EK)
BVP-5AS(AE)

VA-14 BOARD

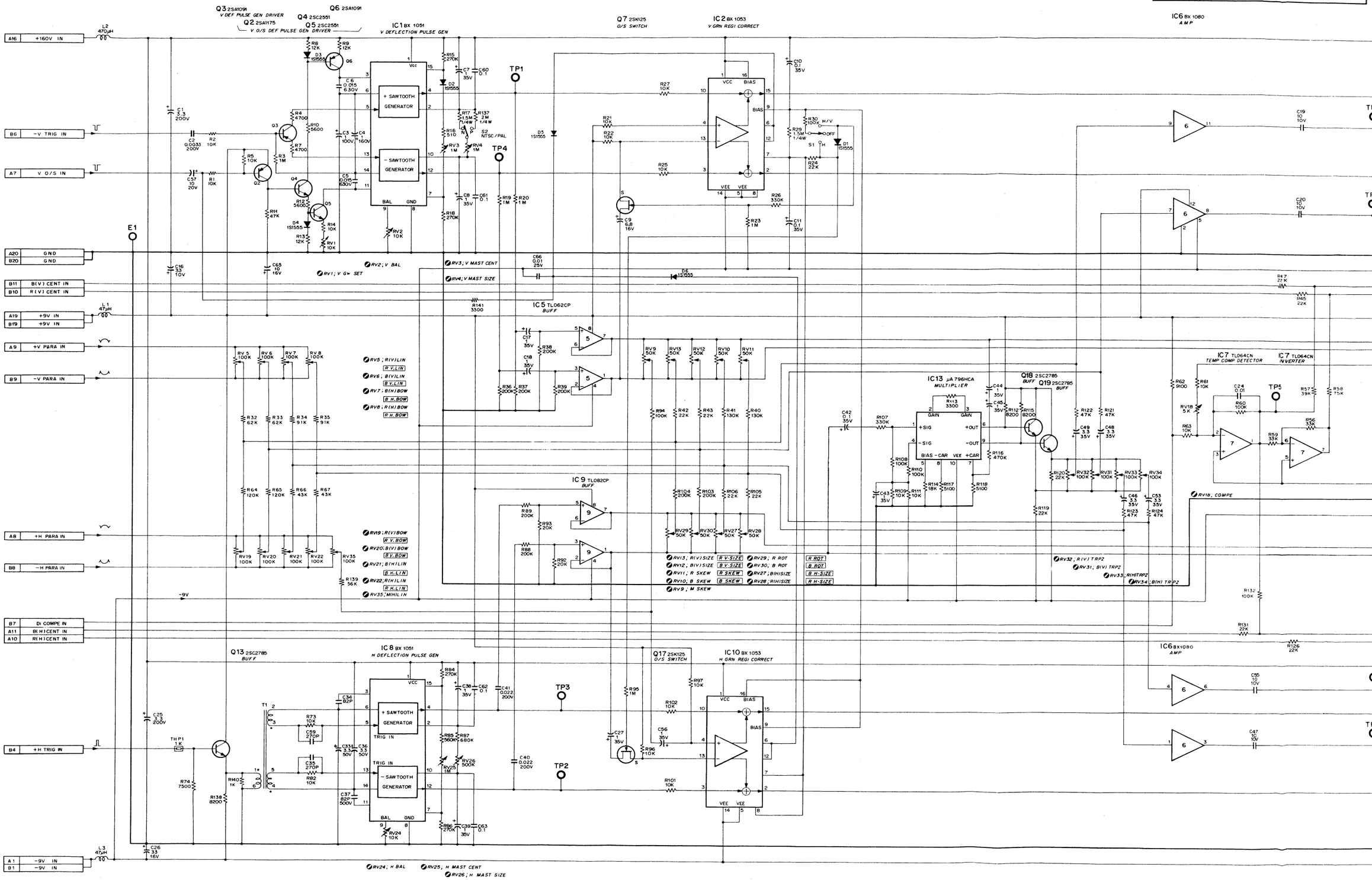

A19 +9V IN
B19 +9V IN
A8 R BLK SHAD IN
B7 R PA VIDEO IN
A20 GND
B20 GND
A1 −9V IN
B1 −9V IN
A13 SAMPLE IN
A10 G BLK SHAD IN
B9 G PA VIDEO IN
B11 B BLK SHAD IN
A11 B PA VIDEO IN
A2 +5V IN
B2 +5V IN
A5 9dB CONT IN
A4 18dB CONT IN
A15 −55V IN
B15 −63V IN
A16 −70V IN
B6 V O/S IN
B16 −79.5V IN
Q1 2SA1175 Q2 2SA1175 Q4 2SC2785 Q5 2SK125
Q3 2SK125
VIDEO CLIPPER
BUFF
GAIN UP SW
IC1 BX1055
VIDEO AMP
Q6 2SK125
GAIN UP SW
IC2 BX1082
SAMPLING HOLD/CLAMP
Q48 2SA1005
INV
Q7 2SK125
1/4 ATTENUATOR
Q8 2SC2785
BUFF
IC3 μA796HCA Q9 2SC2785
GAIN CONTROL
Q10 2SC2785
BUFF
Q11 2SA1
CLAMP
RV1; R GAIN
R GAIN
RV32; R OFF SET
SAMPLE
Q23 2SC2787K
BUFF
Q15 2SA1175 Q16 2SA1175 Q17 2SK125
VIDEO CLIPPER
BUFF
Q18 2SC2785
Q19 2SK125
GAIN UP SW
IC4 BX1055
VIDEO AMP
Q20 2SK125
GAIN UP SW
IC5 BX1082
SAMPLING HOLD/CLAMP
Q21 2SK125
1/2 ATT
Q22 2SK152
RF CLEANER
Q45 2SA1005
IC6 μA796HCA Q24 2SC2787K
GAIN CONTROL
Q25 2SC2787K
BUFF
Q26 2SA100
CLAMPER
RV2; G GAIN
G GAIN
RV33; G OFF SET
CV2; G FREQ RESP
RV23, MOD BAL
IC5 BX1082(2/2)
2.5V REG
Q49 2SC2785
IC13 TC4011BP
INV
Q46 2SA1175
9dB, 18dB INV
Q47 2SA1175
18dB INV
Q31 2SA1175 Q32 2SA1175 Q34 2SC2785
Q33 2SK125
VIDEO CLIPPER
BUFF
Q35 2SK125
GAIN UP SW
IC7 BX1055
VIDEO AMP
Q36 2SK125
GAIN UP SW
IC8 BX1082
SAMPLING HOLD/CLAMP
Q37 2SK125
1/4 ATT
Q38 2SC2785
BUFF
IC9 μA796HCA Q39 2SC2785
GAIN CONTROL
Q40 2SC2785
BUFF
Q41 2SA10
CLAMPER
RV3; B GAIN
B GAIN
RV34; B OFF SET
CV3; B FREQ RESP
RV24; MOD BAL
Q50 2SA1175
INV
IC10 BX1116
RED ABO
Q51 2SA1175
LEVEL CLIP
IC11 BX1116
GRN ABO
Q52 2SA1175
LEVEL CLIP
IC12 BX1116
BLU ABO
Q56 2SA1005
CLP INV
RV5; R ABO GAIN
RV6; KNEE SLOPE
RV8; LEV CLIP
RV7; R BEAM
R BEAM
RV9; KNEE POINT
RV26; G KNEE SLOPE
RV13; G BEAM
G BEAM
RV12; KNEE SLOPE
RV14; LEV CLIP
RV15; KNEE POINT
RV17; B ABO GAIN
RV19; B BE

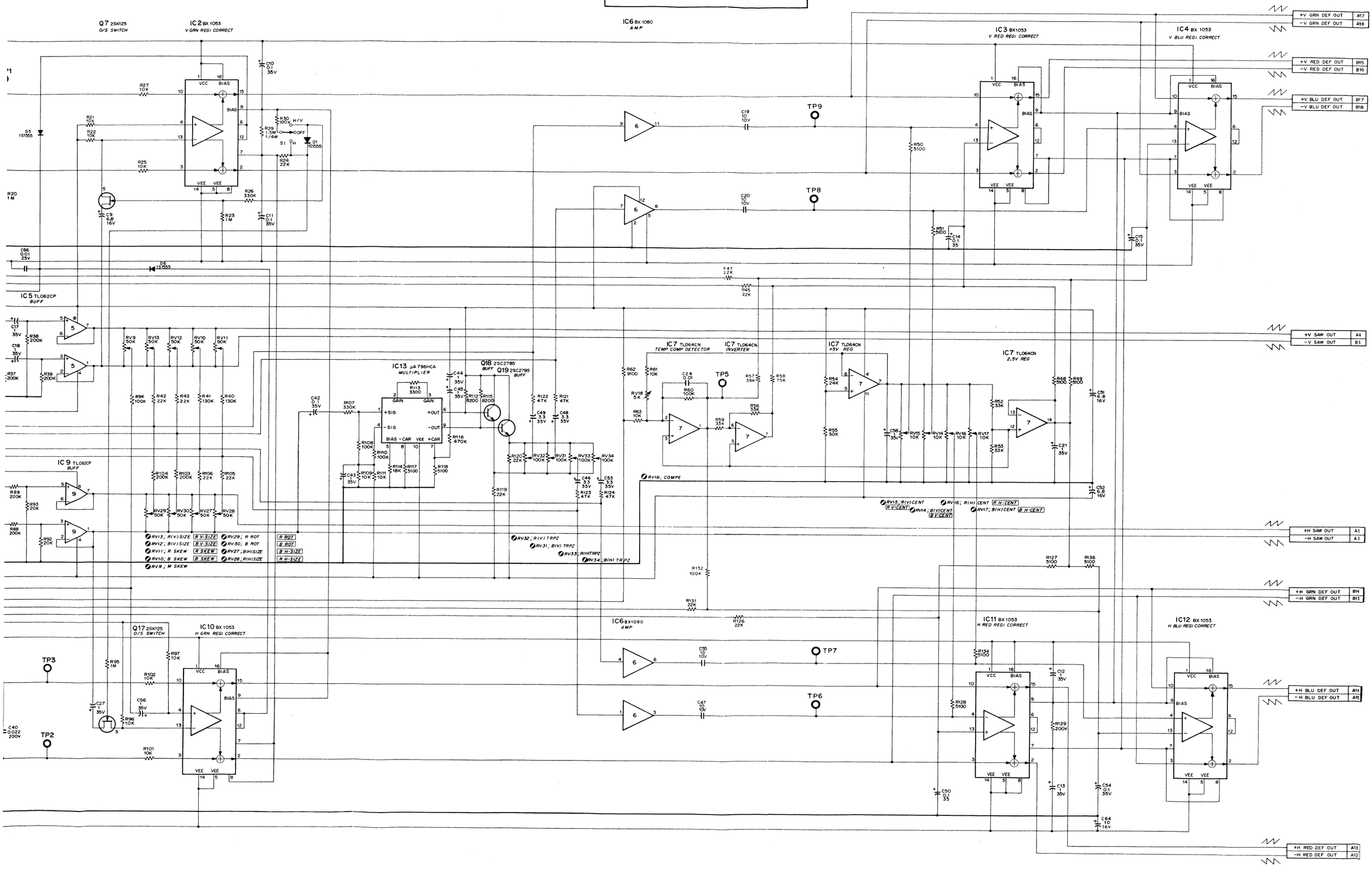


VA-14
BVP-3A (J,UC)
BVP-3AP(EK)
BVP-3AN(J)

DF-17 DF-17

DF-17 BOARD

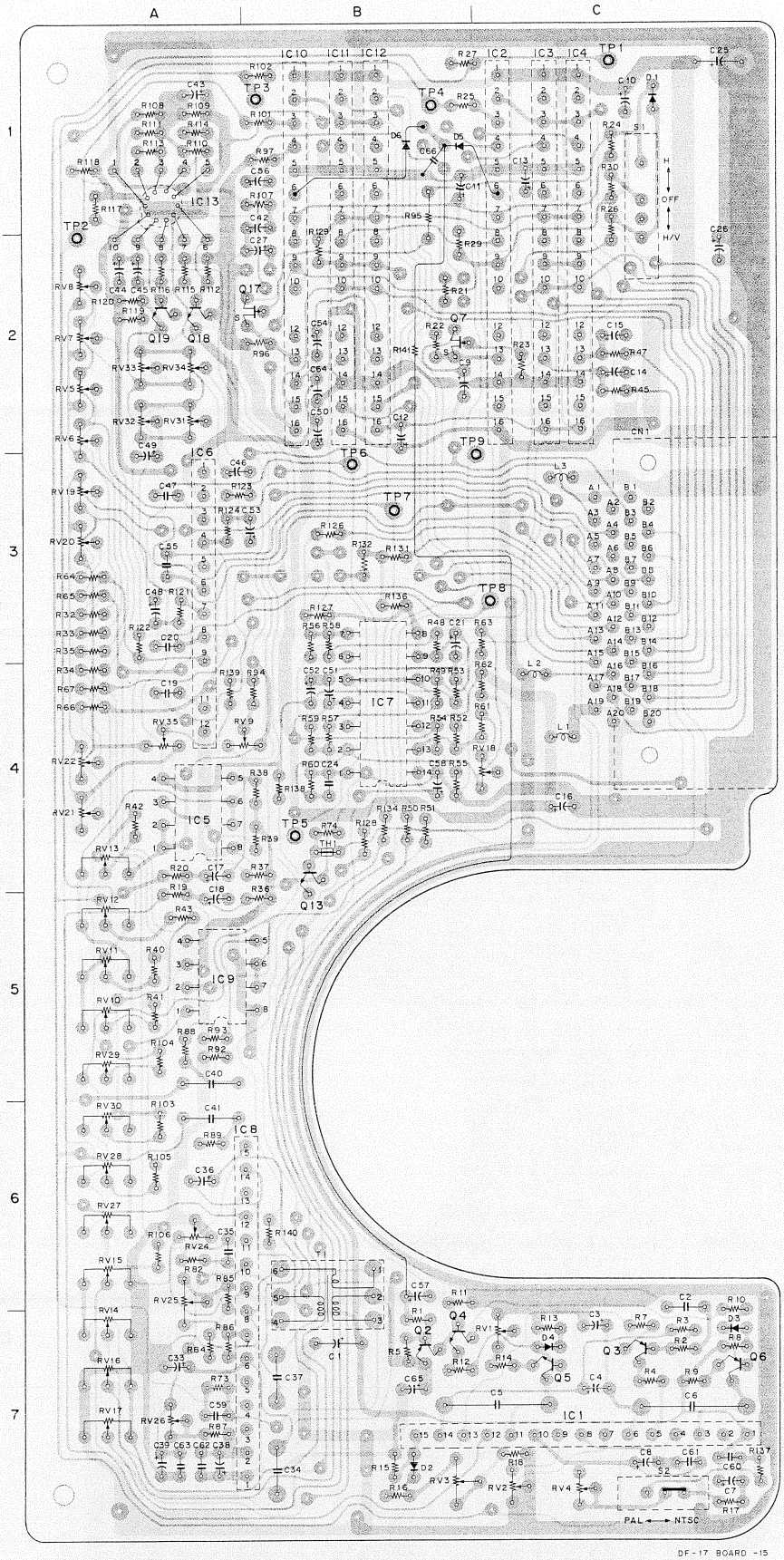




DF-17
BVP-3A (E UC)
BVP-3AP (E K)
BVP-3A (E J)

DF-17 BOARD

— SOLDERING SIDE —



CN1 C - 3

D1 C - 1
D2 B - 7
D3 C - 7
D4 - 7
D5 - 1
D6 - 1

IC1 C - 7
IC2 C - 2
IC3 C - 2
IC4 C - 2
IC5 A - 4
IC6 A - 3
IC7 B - 4
IC8 B - 7
IC9 A - 5
IC10 B - 2
IC11 B - 2
IC12 B - 2
IC13 A - 1

Q2 B - 7
Q3 C - 7
Q4 B - 7
Q5 C - 7
Q6 C - 7
Q7 B - 2
Q13 B - 4
Q17 B - 2
Q18 A - 2
Q19 A - 2

RV1 C - 7
RV2 C - 7
RV3 B - 7
RV4 C - 7
RV5 A - 2
RV6 A - 2
RV7 A - 2
RV8 A - 2
RV9 B - 4
RV10 A - 5
RV11 A - 5
RV12 A - 5
RV13 A - 4
RV14 A - 7
RV15 A - 6
RV16 A - 7
RV17 A - 7
RV18 C - 4
RV19 A - 3
RV20 A - 3
RV21 A - 4
RV22 A - 4
RV24 A - 6
RV25 A - 6
RV26 A - 7
RV27 A - 6
RV28 A - 6
RV29 A - 5
RV30 A - 6
RV31 A - 2
RV32 A - 2
RV33 A - 2
RV34 A - 2
RV35 A - 4

S1 C - 1
S2 C - 7

T1 B - 6

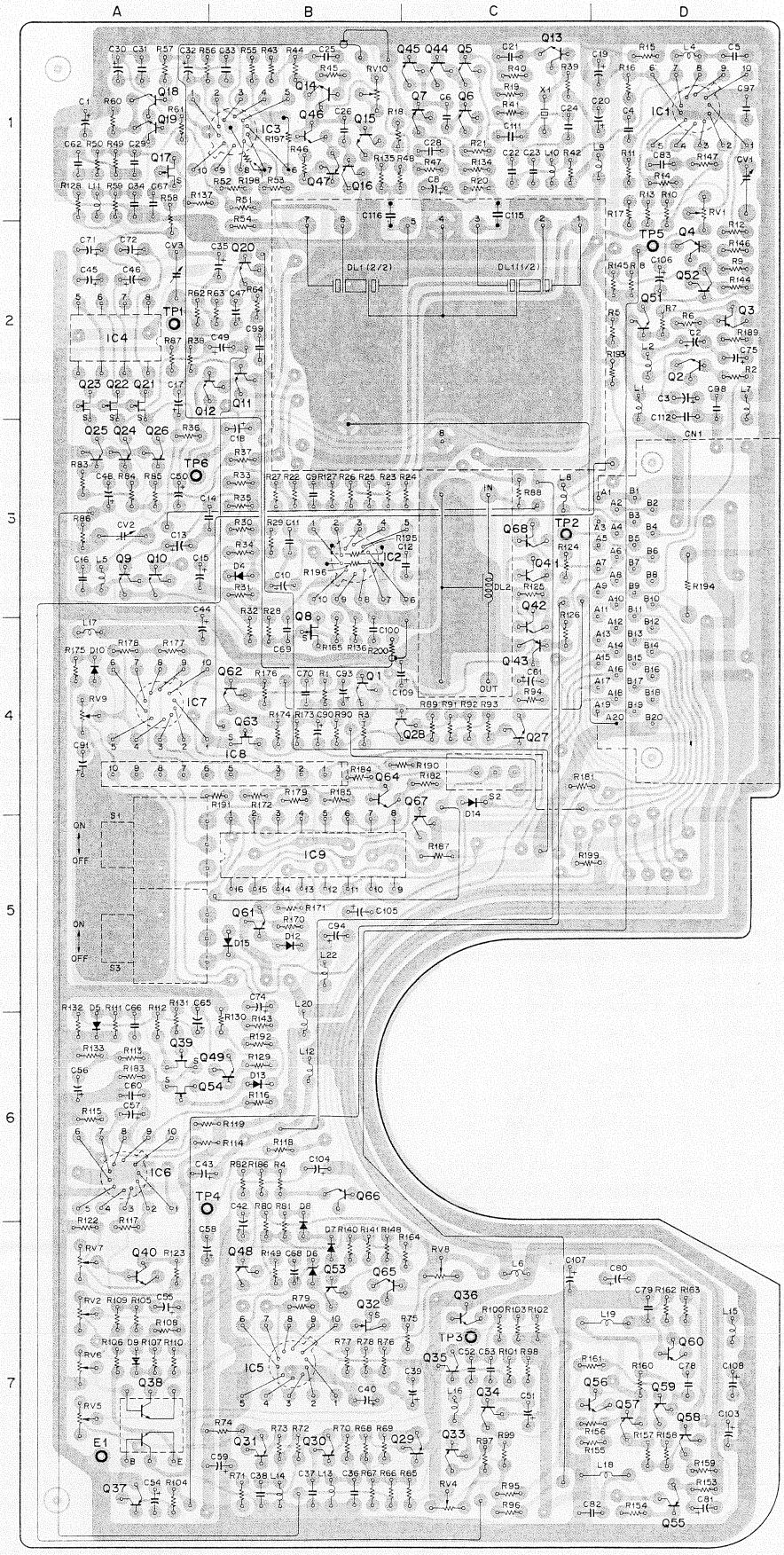
TH1 B - 4

TP1 C - 1
TP2 A - 2
TP3 B - 1
TP4 B - 1
TP5 B - 4
TP6 B - 3
TP7 B - 3
TP8 C - 3
TP9 C - 3

DF-17 BOARD -15
—SOLDERING SIDE—
8VP-3
10701 ~ (UC)
15401 ~ (J)
8VP-3P(AE/UK)
10101 ~
8VP-3S(AEP)
8VP-3A(J,UC)
8VP-3AN(J)
8VP-3AP(EK)

IE-6 BOARD

– SOLDERING SIDE –



CN1 D - 3

CV1 D - 1
CV2 A - 3
CV3 A - 2

D4 B - 3
D5 A - 6
D6 B - 7
D7 B - 7
D8 B - 7
D9 A - 7
D10 A - 4
D12 B - 5
D13 B - 6
D14 C - 5
D15 B - 5

DL1 C - 2
DL2 C - 3

E1 A - 7

IC1 D - 1
IC2 B - 3
IC3 B - 1
IC4 A - 2
IC5 B - 7
IC6 A - 6
IC7 A - 4
IC8 B - 4
IC9 B - 5

Q1 B - 4
Q2 D - 2
Q3 D - 2
Q4 D - 2
Q5 C - 1
Q6 C - 1
Q7 C - 1
Q8 B - 4
Q9 A - 3
Q10 A - 3
Q11 B - 2
Q12 B - 2
Q13 C - 1
Q14 B - 1
Q15 B - 1
Q16 B - 1
Q17 A - 1
Q18 A - 1
Q19 A - 1
Q20 B - 2
Q21 A - 2
Q22 A - 2
Q23 A - 2
Q24 A - 3
Q25 A - 3
Q26 A - 3
Q27 C - 4
Q28 C - 4
Q29 C - 7
Q30 B - 7
Q31 B - 7
Q32 B - 7
Q33 C - 7
Q34 C - 7
Q35 C - 7
Q36 C - 7
Q37 A - 7
Q38 A - 6
Q39 A - 7
Q40 C - 3
Q41 C - 4
Q42 C - 4
Q43 C - 4
Q44 C - 1
Q45 C - 1
Q46 B - 1
Q47 B - 1
Q48 B - 7
Q49 B - 6
Q51 D - 2
Q52 D - 2
Q53 B - 7
Q54 A - 6
Q55 D - 7
Q56 D - 7
Q57 D - 7
Q58 D - 7
Q59 D - 7
Q60 D - 7
Q61 B - 5
Q62 B - 4
Q63 B - 4
Q64 B - 4
Q65 B - 7
Q66 B - 6
Q67 C - 5
Q68 C - 3

RV1 D - 1
RV2 A - 7
RV4 C - 7
RV5 A - 7
RV6 A - 7
RV7 A - 7
RV8 C - 7
RV9 A - 4

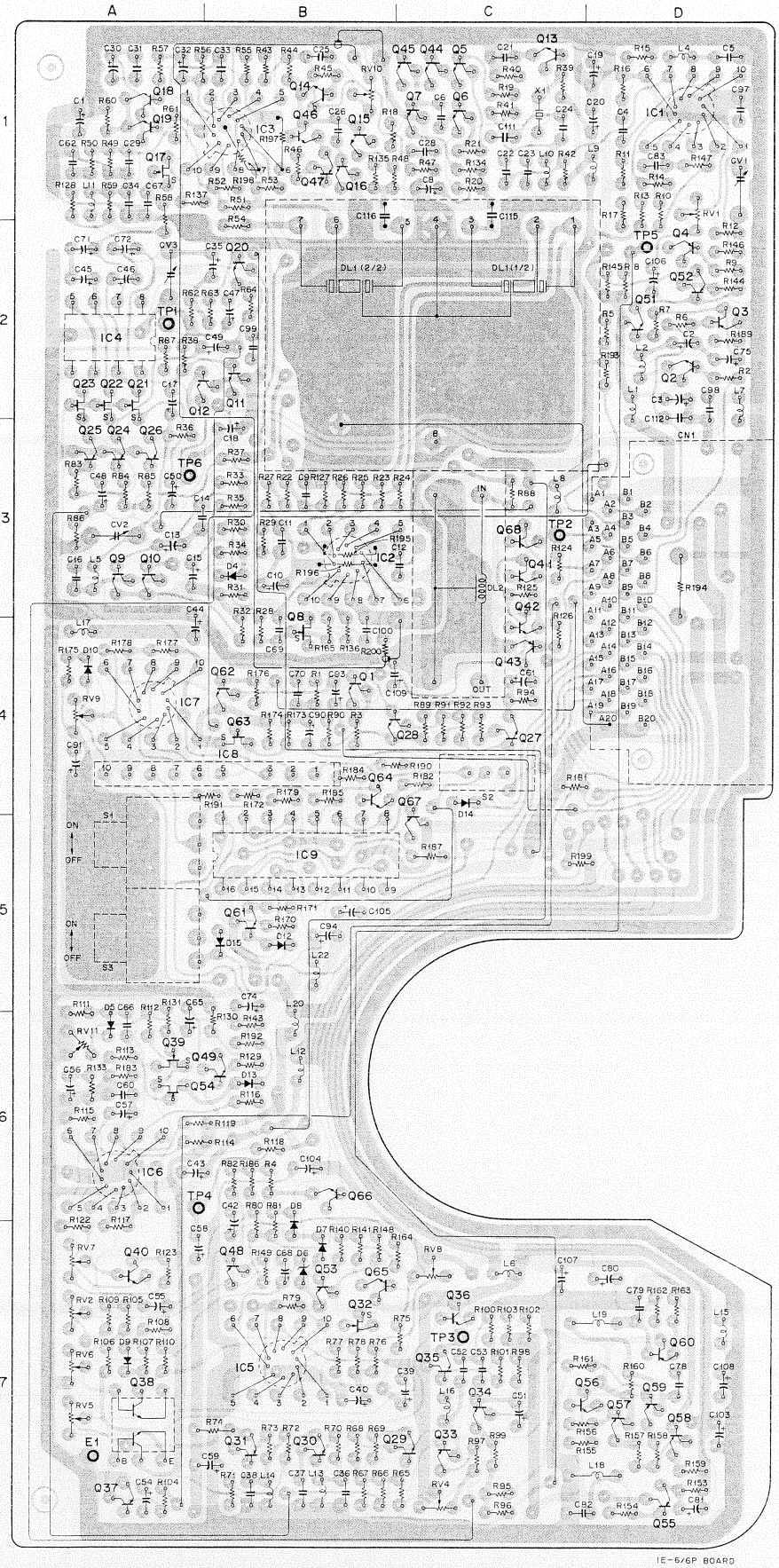
S1 A - 5
S2 C - 4
S3 A - 5

TP1 A - 2
TP2 C - 3
TP3 C - 7
TP4 A - 6
TP5 D - 2
TP6 A - 3

X1 C - 1

IE-6/6P BOARD
1-608-886-16
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)

IE-6/6P BOARD
— SOLDERING SIDE —



CN1 D-3

CV1 D-1
CV2 A-3
CV3 A-2

D4 B-3
D5 A-6
D6 B-7
D7 B-7
D8 B-7
D9 A-7
D10 A-4
D12 B-5
D13 B-6
D14 C-5
D15 B-5

DL1 C-2
DL2 C-3

E1 A-7

IC1 D-1
IC2 B-3
IC3 B-1
IC4 A-2
IC5 B-7
IC6 A-6
IC7 A-4
IC8 B-4
IC9 B-5

Q1 B-4
Q2 D-2
Q3 D-2
Q4 D-2
Q5 C-1
Q6 C-1
Q7 C-1
Q8 B-4
Q9 A-3
Q10 A-3
Q11 B-2
Q12 B-2
Q13 C-1
Q14 B-1
Q15 B-1
Q16 B-1
Q17 A-1
Q18 A-1
Q19 A-1
Q20 B-2
Q21 A-2
Q22 A-2
Q23 A-2
Q24 A-3
Q25 A-3
Q26 A-3
Q27 C-4
Q28 C-4
Q29 C-7
Q30 B-7
Q31 B-7
Q32 B-7
Q33 C-7
Q34 C-7
Q35 C-7
Q36 C-7
Q37 A-7
Q38 A-7
Q39 A-6
Q40 A-7
Q41 C-3
Q42 C-4
Q43 C-4
Q44 C-1
Q45 C-1
Q46 B-1
Q47 B-1
Q48 B-7
Q49 B-6
Q51 D-2
Q52 D-2
Q53 B-7
Q54 A-6
Q55 D-7
Q56 D-7
Q57 D-7
Q58 D-7
Q59 D-7
Q60 D-7
Q61 B-5
Q62 B-4
Q63 B-4
Q64 B-4
Q65 B-7
Q66 B-6
Q67 C-5
Q68 C-3

RV1 D-1
RV2 A-7
RV4 C-7
RV5 A-7
RV6 A-7
RV7 A-7
RV8 C-7
RV9 A-4
RV10 B-1
RV11 A-6

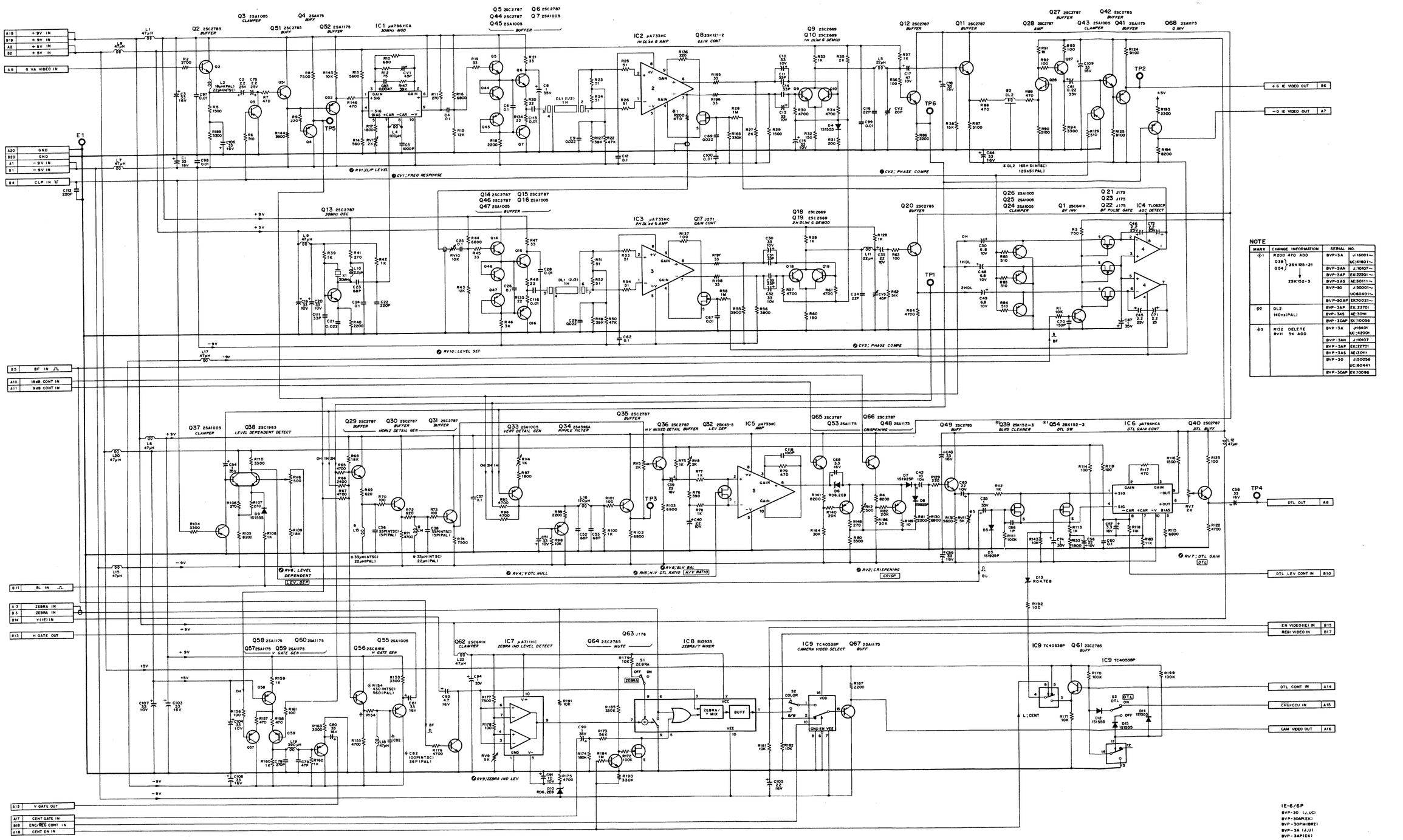
S1 A-5
S2 C-4
S3 A-5

TP1 A-2
TP2 C-3
TP3 C-7
TP4 A-6
TP5 D-2
TP6 A-3

X1 C-1

IE-6/6P BOARD
1-608-886-17
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)

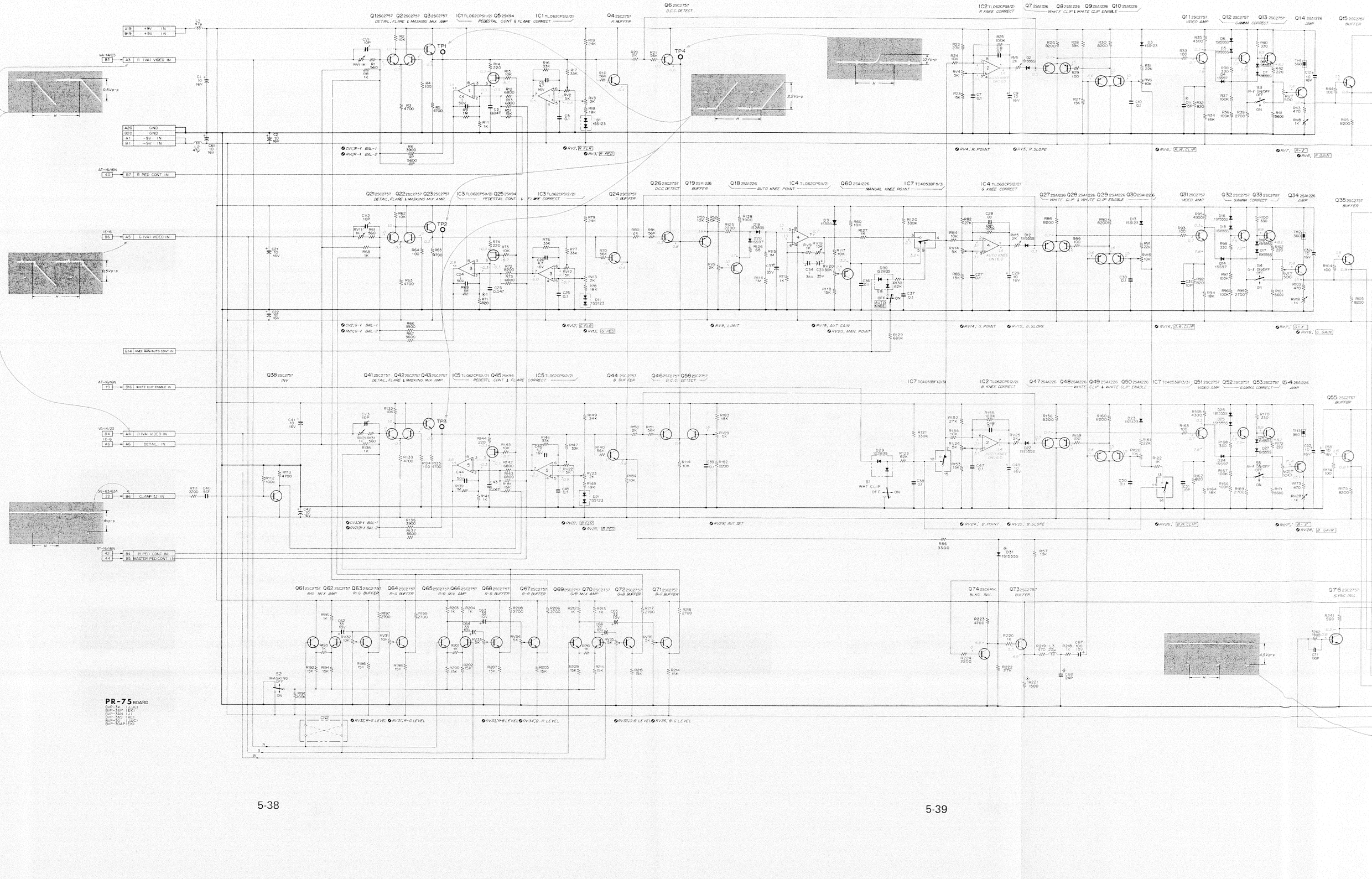
IE-6P BOARD



NOTE			
MARK	CHANGE INFORMATION	SERIAL NO.	
※1	R200 470 ADD Q39 2SK125-21 Q54 ↓ 2SK152-3	BVP-3A	J:16001~ UC:41601~
		BVP-3AN	J:10107~
		BVP-3AP	EK:22201~
		BVP-3AS	AE:30111~
		BVP-30	J:50001~ UC60401~
		BVP-30AP	EK:10021~
※2	DL2 140ns(PAL)	BVP-3AP	EK:22701
		BVP-3AS	AE:3011
		BVP-30AP	EK:10056
※3	R132 DELETE RV11 5K ADD	BVP-3A	J:16401 UC:42001
		BVP-3AN	J:10107
		BVP-3AP	EK:22701
		BVP-3AS	AE:3011
		BVP-30	J:50056 UC:60441
		BVP-30AP	EK:10096

IE-6/6P
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,U)
BVP-3AP(EK)
BVP-3AN(J)
BVP-3AS(AE)

PR-75 BOARD

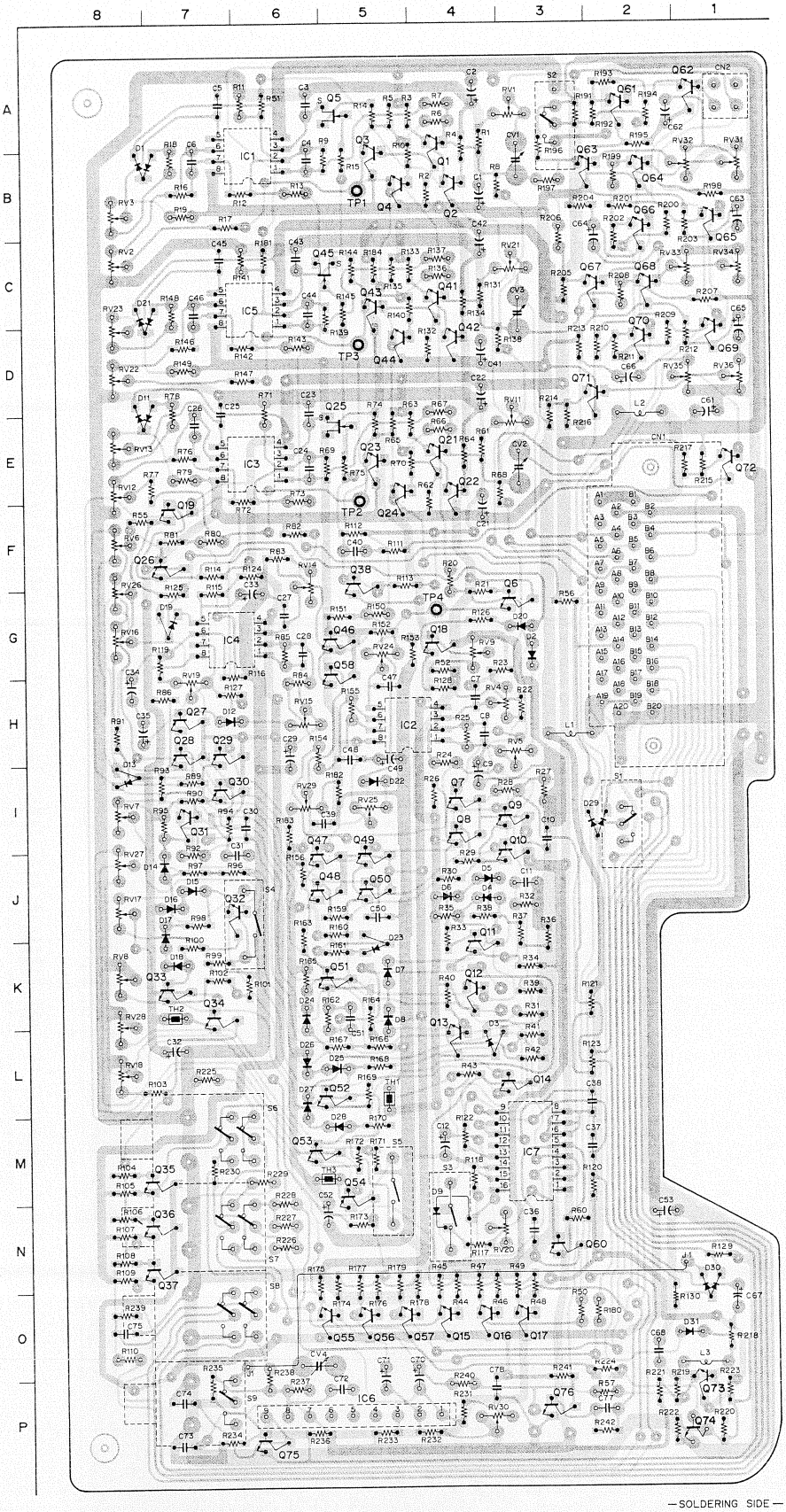

PR-75 BOARD
BVP-3A (J,UC)
BVP-3AP (EK)
BVP-3AN (J)
BVP-50 (J,UC)
BVP-50AP (EK)
A19 +9V IN
B19 +9V IN
A20 GND
B20 GND
A1 -9V IN
B1 -9V IN
A3 R (VA) VIDEO IN
B6 R PED CONT IN
A5 G (VA) VIDEO IN
B14 KNEE MAN/AUTO CONT IN
B15 WHITE CLIP ENABLE IN
B4 B (VA) VIDEO IN
A6 DETAIL IN
A6 G AMP 'U' IN
B4 B PED CONT IN
B5 MASTER PED CONT IN
Q1 2SC2757 Q2 2SC2757 Q3 2SC2757 DETAIL, FLARE & MASKING MIX AMP
IC1 TL062CPS1I/2I PEDESTAL CONT & FLARE CORRECT
Q4 2SC2757 R BUFFER
Q6 2SC2757 D.C.C. DETECT
IC2 TL062CPS2I/2I R KNEE CORRECT
Q7 2SA1226 Q8 2SA1226 Q9 2SA1226 Q10 2SA1226 WHITE CLIP & WHITE CLIP ENABLE
Q11 2SC2757 VIDEO AMP
Q12 2SC2757 Q13 2SC2757 GAMMA CORRECT
Q14 2SA1226 AMP
Q15 2SC2757 BUFFER
Q21 2SC2757 Q22 2SC2757 Q23 2SC2757 DETAIL, FLARE & MASKING MIX AMP
IC3 TL062CPS1I/2I Q25 2SK94 PEDESTAL CONT & FLARE CORRECT
Q24 2SC2757 G BUFFER
Q26 2SC2757 D.C.C. DETECT
Q19 2SA1226 BUFFER
Q18 2SA1226 IC4 TL062CPS1I/2I AUTO KNEE POINT
Q60 2SA1226 IC7 TC4053BF1/3I MANUAL KNEE POINT
IC4 TL062CPS2I/2I G KNEE CORRECT
Q27 2SA1226 Q28 2SA1226 Q29 2SA1226 Q30 2SA1226 WHITE CLIP & WHITE CLIP ENABLE
Q31 2SC2757 VIDEO AMP
Q32 2SC2757 Q33 2SC2757 GAMMA CORRECT
Q34 2SA1226 AMP
Q35 2SC2757 BUFFER
Q38 2SC2757 INV
Q41 2SC2757 Q42 2SC2757 Q43 2SC2757 DETAIL, FLARE & MASKING MIX AMP
IC5 TL062CPS1I/2I PEDESTL CONT & FLARE CORRECT
Q45 2SK94
IC5 TL062CPS2I/2I
Q44 2SC2757 B BUFFER
Q46 2SC2757 Q58 2SC2757 D.C.C. DETECT
IC7 TC4053BF1/3I
IC2 TL062CPS2I/2I B KNEE CORRECT
Q47 2SA1226 Q48 2SA1226 Q49 2SA1226 Q50 2SA1226 WHITE CLIP & WHITE CLIP ENABLE
IC7 TC4053BF1/3I
Q51 2SC2757 Q52 2SC2757 Q53 2SC2757 VIDEO AMP GAMMA CORRECT
Q54 2SA1226 AMP
Q55 2SC2757 BUFFER
Q61 2SC2757 Q62 2SC2757 Q63 2SC2757 R/G MIX AMP
Q64 2SC2757 R-G BUFFER
Q65 2SC2757 Q66 2SC2757 R/B MIX AMP
Q68 2SC2757 R-B BUFFER
Q67 2SC2757 B-R BUFFER
Q69 2SC2757 Q70 2SC2757 G/B MIX AMP
Q72 2SC2757 G-B BUFFER
Q71 2SC2757 B-G BUFFER
Q74 2SC641K BLKG INV.
Q73 2SC2757 BUFFER
Q76 2SC2757 SYNC INV.
S1 WHT CLIP OFF ON
S2 MASKING OFF ON
S3 R-Y ON/OFF OFF ON
S4 G-Y ON/OFF OFF ON
S5 AUTO KNEE OFF ON
S6 B-Y ON/OFF OFF ON
RV1 R-I BAL-1
RV2 R-I BAL-2
RV3 R PED
RV4 R POINT
RV5 R SLOPE
RV6 R.W.CLIP
RV7 R-Y
RV8 R GAIN
RV9 LIMIT
RV11 G-I BAL-1
RV12 G-I BAL-2
RV13 G PED
RV14 G POINT
RV15 G SLOPE
RV16 G.W.CLIP
RV17 G-Y
RV18 G GAIN
RV19 AUT GAIN
RV20 MAN. POINT
RV21 B-I BAL-1
RV22 B-I BAL-2
RV23 B PED
RV24 B POINT
RV25 B SLOPE
RV26 B.W.CLIP
RV27 B-Y
RV28 B GAIN
RV29 AUT SET
RV30 B-R LEVEL
RV31 R-G LEVEL
RV32 R-G LEVEL
RV33 R-B LEVEL
RV34 B-R LEVEL
RV35 G-B LEVEL
RV36 B-G LEVEL
CN2
0.5Vp-p
2.2Vp-p
4Vp-p
4.5Vp-p
H

NOTE

MARK	CHANGE INFORMATION		SERIAL NO.	
※	D31 1S1555 → A00		BVP-3A	J:16001~
	C11 10P → 15P			UC:41401~
	C68 100P → 24P		BVP-3AN	J:10107~
	R221 2200 → 1500		BVP-3AP	EK:21901~
			BVP-3AS	AE:30111~
			BVP-30	J:50001~
				UC:60311~
			BVP-30AP	EK:10001~
※1	R71 1K → 820		BVP-3A	J:16216~
				UC:40701~
			BVP-3AN	J:10107~
			BVP-3AP	EK:22501~
			BVP-3AS	AE:30111~
			BVP-30	J:50036~
				UC:60401~
			BVP-30AP	EK:10021~

PR-75 BOARD

— SOLDERING SIDE —



— SOLDERING SIDE —

PR-75 BOARD

1-617-204-12,13

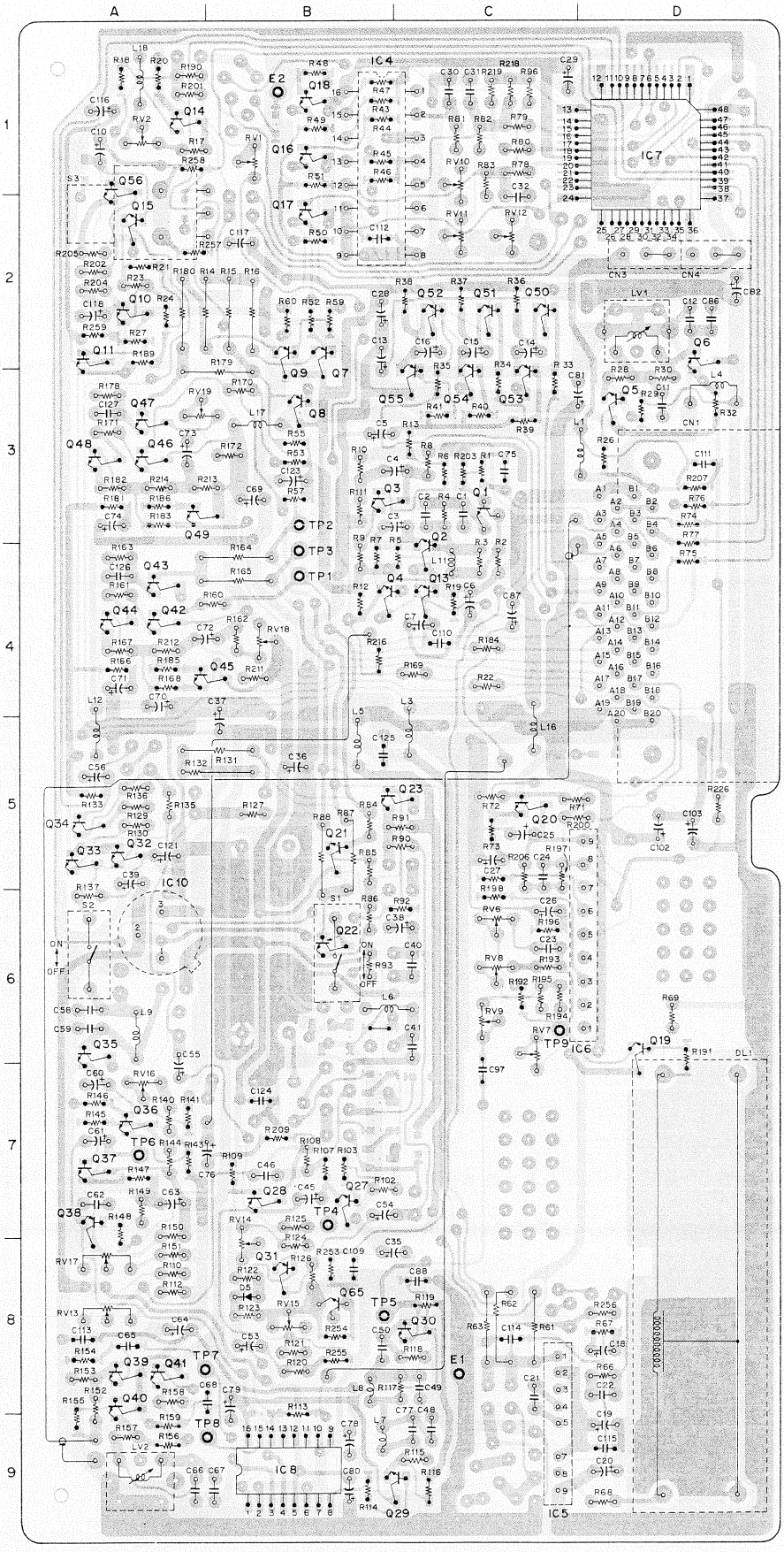
BVP-5A (J,UC)
BVP-5AP (EK)
BVP-5AN (J)
BVP-5AS (AE)
BVP-50 (J,UC)
BVP-50AP(EK)

CN1	G-2	RV1	A-3
CN2	A-1	RV2	C-8
		RV3	B-8
CV1	B-3	RV4	H-3
CV2	E-3	RV5	H-3
CV3	C-3		
CV4	O-6	RV6	F-8
		RV7	I-8
D1	B-8	RV8	K-8
D2	G-3	RV9	G-4
D3	L-4	RV11	E-3
D4	J-4		
D5	J-4	RV12	E-8
		RV13	E-8
D6	J-4	RV14	F-6
D7	K-5	RV15	H-6
D8	K-5	RV16	G-8
D9	N-4		
D11	D-8	RV17	J-8
		RV18	L-8
D12	H-7	RV19	H-7
D13	I-8	RV20	N-4
D14	J-7	RV21	C-3
D15	J-7		
D16	J-7	RV22	D-8
		RV23	D-8
D17	J-7	RV24	G-5
D18	K-7	RV25	I-5
D19	G-7	RV26	G-8
D20	G-3		
D21	C-8	RV27	J-8
		RV28	K-8
D22	I-5	RV29	I-6
D23	K-5	RV30	P-4
D24	K-6	RV31	B-1
D25	L-5		
D26	L-6	RV32	B-1
		RV33	C-1
D27	L-6	RV34	C-1
D28	M-5	RV35	D-1
D29	I-2	RV36	D-1
D30	O-1		
D31	K-2	S1	I-2
		S2	A-3
IC1	B-6	S3	N-4
IC2	H-4	S4	J-6
IC3	E-6	S5	M-5
IC4	G-7		
IC5	C-6	S6	M-7
IC6	P-5	S7	N-7
IC7	M-3	S8	O-7
		S9	P-7
Q1	A-4		
Q2	B-4	TH1	L-5
Q3	B-5	TH2	K-7
Q4	B-5	TH3	M-6
Q5	A-5		
		TP1	B-5
Q6	G-3	TP2	E-5
Q7	I-4	TP3	D-5
Q8	I-4	TP4	G-4
Q9	I-3		
Q10	J-3		
Q11	K-4		
Q12	K-4		
Q13	L-4		
Q14	L-3		
Q15	O-4		
Q16	O-4		
Q17	O-3		
Q18	G-4		
Q19	F-7		
Q21	E-4		
Q22	E-4		
Q23	E-5		
Q24	E-5		
Q25	E-5		
Q26	F-7		
Q27	H-7		
Q28	H-7		
Q29	H-7		
Q30	I-7		
Q31	I-7		
Q32	J-7		
Q33	K-7		
Q34	K-7		
Q35	M-8		
Q36	N-8		
Q37	N-8		
Q38	F-5		
Q41	C-4		
Q42	D-4		
Q43	C-5		
Q44	D-5		
Q45	C-5		
Q46	G-5		
Q47	J-6		
Q48	J-6		
Q49	J-5		
Q50	J-5		
Q51	K-6		
Q52	L-6		
Q53	M-6		
Q54	M-5		
Q55	O-6		
Q56	O-5		
Q57	O-5		
Q58	G-5		
Q60	N-3		
Q61	A-2		
Q62	A-1		
Q63	B-2		
Q64	B-2		
Q65	B-1		
Q66	B-2		
Q67	C-2		
Q68	C-2		
Q69	D-1		
Q70	D-2		
Q71	D-2		
Q72	E-1		
Q73	P-1		
Q74	P-1		
Q75	P-6		
Q76	P-3		

Parts No. 1-612-776-22

EN-33A BOARD

– SOLDERING SIDE –



CN1 D - 3
CN3 D - 2
CN4 D - 2

D5 B - 8

DL1 D - 8

E1 C - 8
E2 B - 1

IC4 B - 1
IC5 C - 9
IC6 D - 6
IC7 D - 1
IC8 B - 9
IC10 A - 6

LV1 D - 2
LV2 A - 9

Q1 C - 3
Q2 C - 4
Q3 B - 3
Q4 B - 4
Q5 D - 3
Q6 D - 2
Q7 B - 2
Q8 B - 3
Q9 B - 2
Q10 A - 2
Q11 A - 2
Q13 C - 4
Q14 A - 1
Q15 A - 2
Q16 B - 1
Q17 B - 2
Q18 B - 1
Q19 D - 6
Q20 C - 5
Q21 B - 5
Q22 B - 6
Q23 B - 5
Q27 B - 7
Q28 B - 7
Q29 C - 9
Q30 C - 8
Q31 B - 8
Q32 A - 5
Q33 A - 5
Q34 A - 6
Q35 A - 7
Q36 A - 7
Q37 A - 7
Q38 A - 8
Q39 A - 8
Q40 A - 8
Q41 A - 4
Q42 A - 4
Q43 A - 4
Q44 A - 4
Q45 A - 4
Q46 A - 3
Q47 A - 3
Q48 A - 3
Q49 A - 3
Q50 C - 2
Q51 C - 2
Q52 C - 2
Q53 C - 3
Q54 C - 3
Q55 C - 3
Q56 A - 1
Q65 B - 8

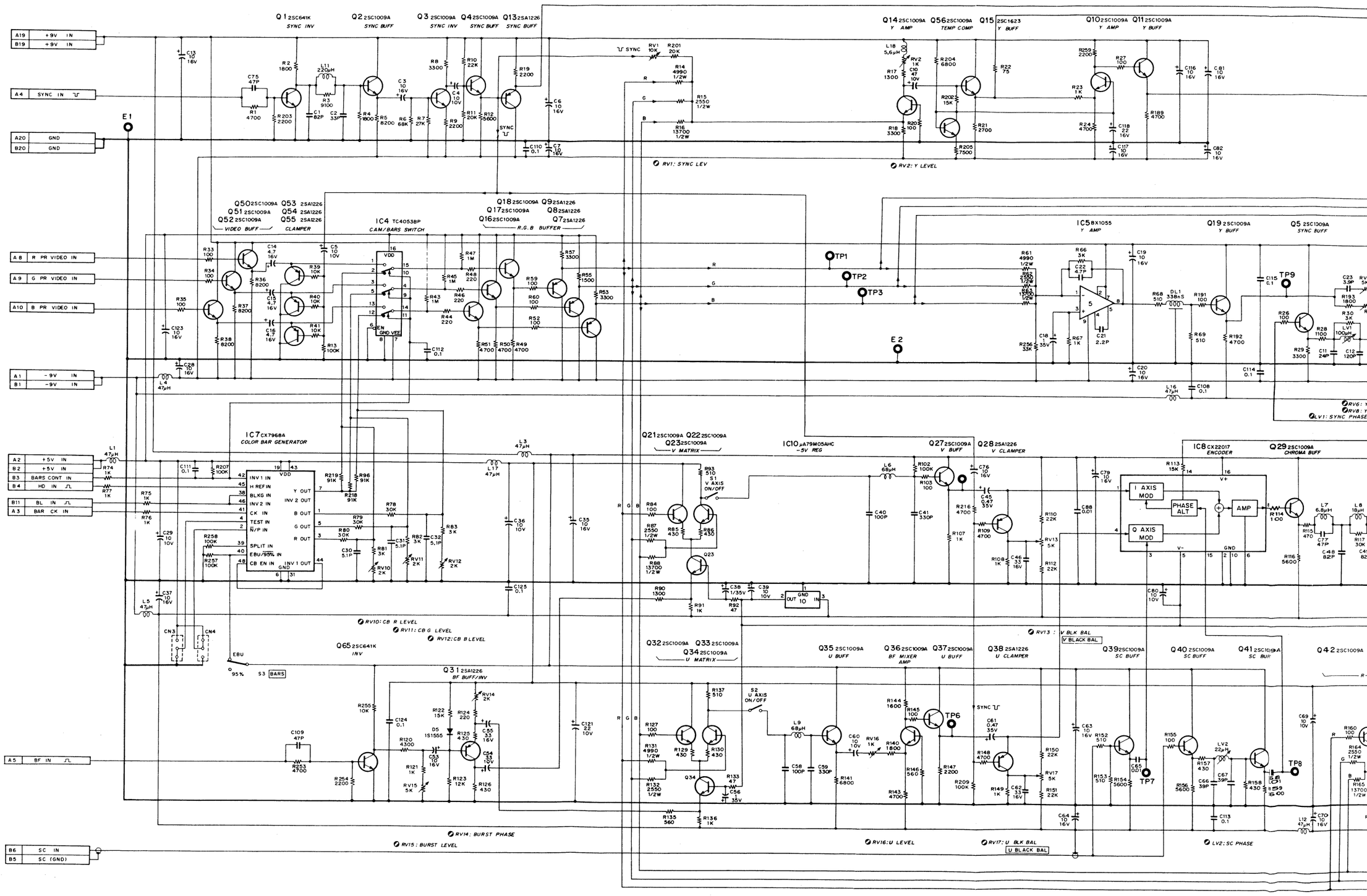
RV1 B - 1
RV2 A - 1
RV6 C - 6
RV7 C - 6
RV8 C - 6
RV9 C - 6
RV10 C - 1
RV11 C - 2
RV12 C - 2
RV13 A - 8
RV14 B - 8
RV15 B - 8
RV16 A - 7
RV17 A - 8
RV18 B - 4
RV19 A - 3

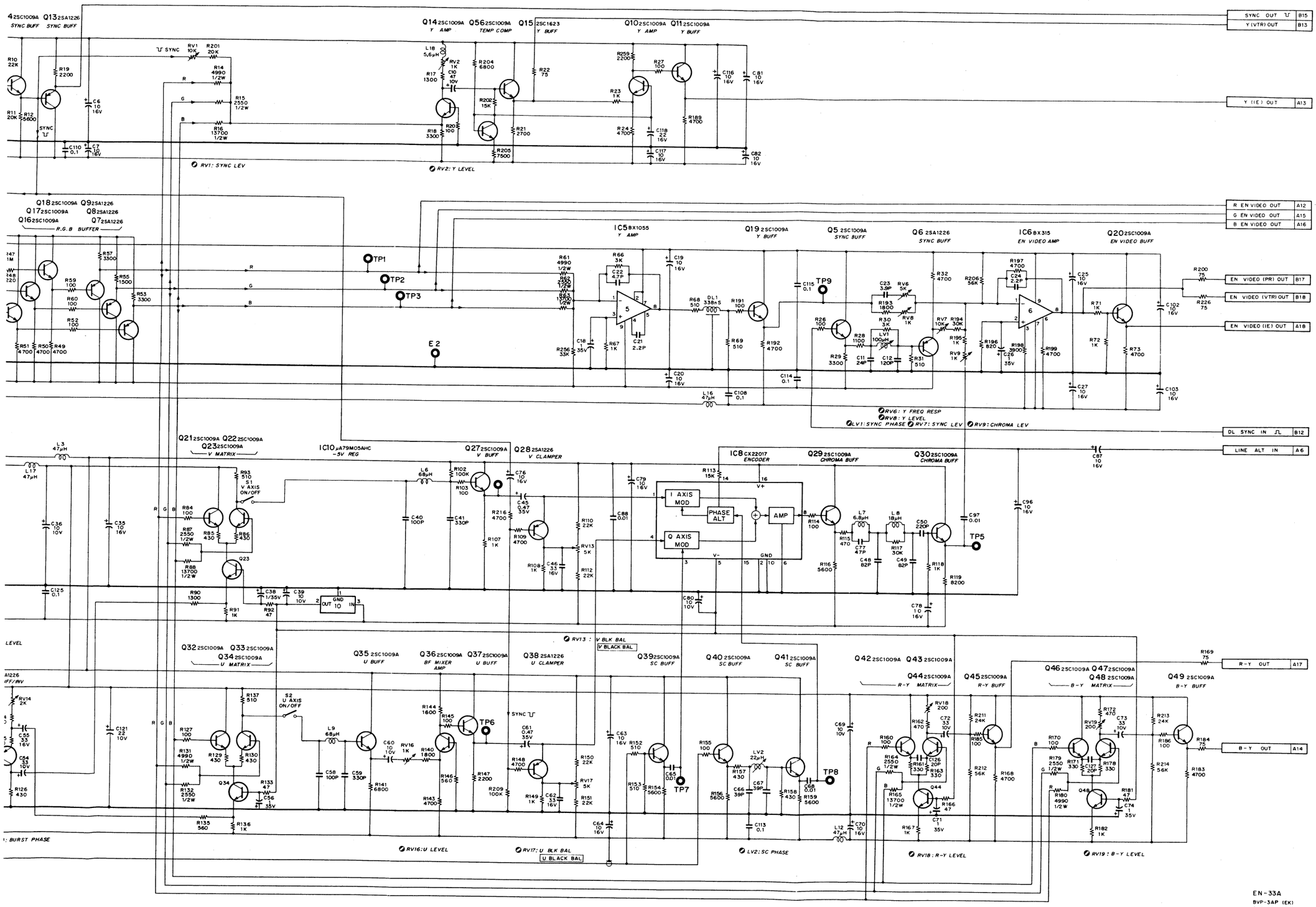
S1 B - 6
S2 A - 6
S3 A - 2

TP1 B - 4
TP2 B - 3
TP3 B - 4
TP4 B - 7
TP5 B - 8
TP6 A - 7
TP7 A - 8
TP8 A - 9
TP9 C - 6

EN-33A BOARD
-SOLDERING SIDE-
1-612-776-22
BVP-3A(PIEK)
BVP-30A(PIEK)

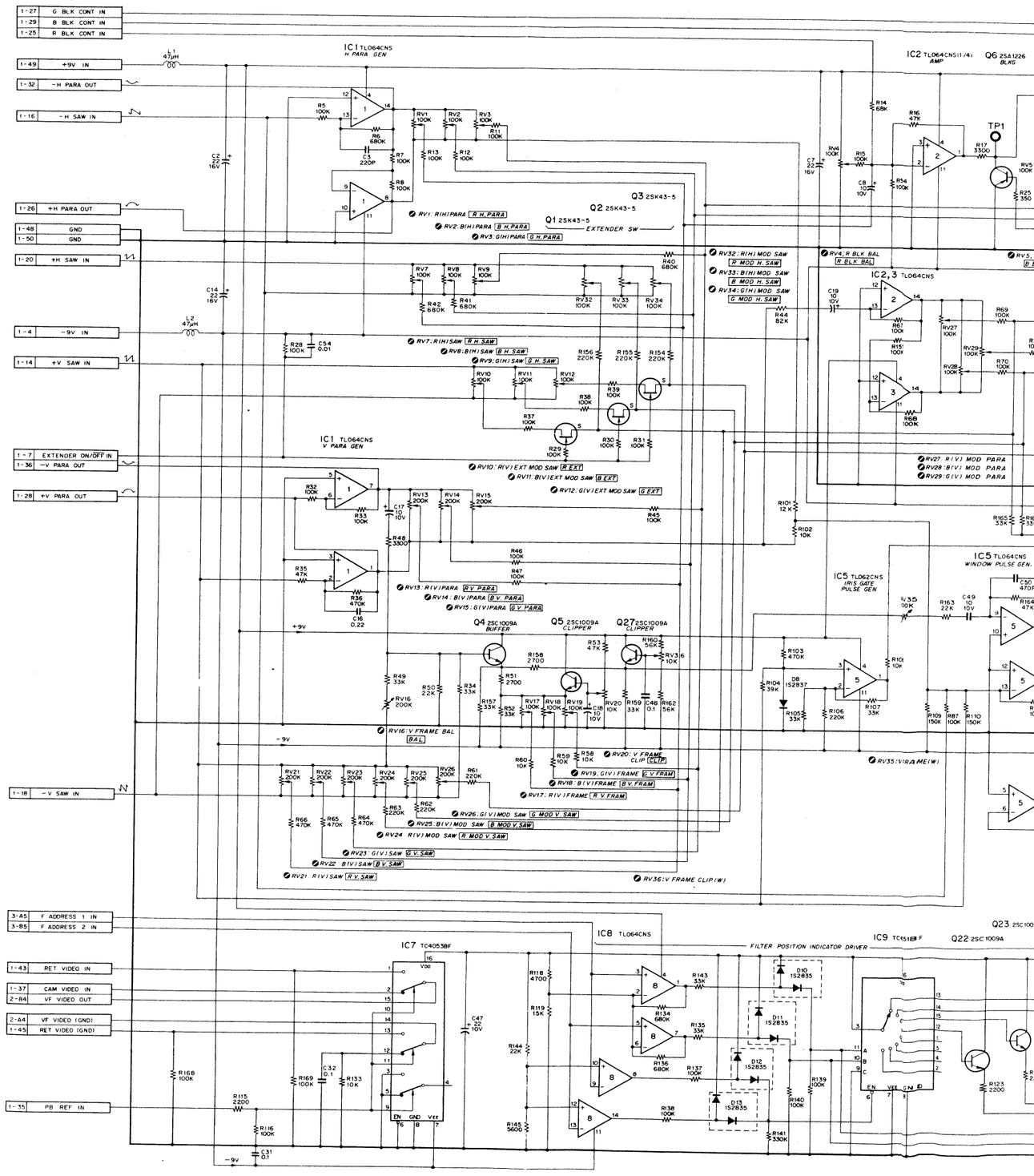
EN-33A BOARD


A19 +9V IN
B19 +9V IN
A4 SYNC IN
A20 GND
B20 GND
E1
Q1 2SC641K SYNC INV
Q2 2SC1009A SYNC BUFF
Q3 2SC1009A SYNC INV
Q4 2SC1009A SYNC BUFF
Q13 2SA1226 SYNC BUFF
Q14 2SC1009A Y AMP
Q56 2SC1009A TEMP COMP
Q15 2SC1623 Y BUFF
Q10 2SC1009A Y AMP
Q11 2SC1009A Y BUFF
RV1: SYNC LEV
RV2: Y LEVEL
A8 R PR VIDEO IN
A9 G PR VIDEO IN
A10 B PR VIDEO IN
Q50 2SC1009A Q51 2SC1009A Q52 2SC1009A VIDEO BUFF
Q53 2SA1226 Q54 2SA1226 Q55 2SA1226 CLAMPER
IC4 TC4053BP CAM/BARS SWITCH
Q18 2SC1009A Q17 2SC1009A Q16 2SC1009A R.G.B BUFFER
Q9 2SA1226 Q8 2SA1226 Q7 2SA1226
IC5 BX1055 Y AMP
Q19 2SC1009A Y BUFF
Q5 2SC1009A SYNC BUFF
TP1
TP2
TP3
TP9
E2
A1 -9V IN
B1 -9V IN
IC7 CX7968A COLOR BAR GENERATOR
Q21 2SC1009A Q22 2SC1009A Q23 2SC1009A V MATRIX
IC10 μA79M05AHC -5V REG
Q27 2SC1009A V BUFF
Q28 2SA1226 V CLAMPER
IC8 CX22017 ENCODER
Q29 2SC1009A CHROMA BUFF
A2 +5V IN
B2 +5V IN
B3 BARS CONT IN
B4 HD IN
B11 BL IN
A3 BAR CK IN
I AXIS MOD
Q AXIS MOD
PHASE ALT
AMP
RV10: CB R LEVEL
RV11: CB G LEVEL
RV12: CB B LEVEL
RV13: V BLK BAL
V BLACK BAL
Q65 2SC641K INV
Q31 2SA1226 BF BUFF/INV
Q32 2SC1009A Q33 2SC1009A Q34 2SC1009A U MATRIX
Q35 2SC1009A U BUFF
Q36 2SC1009A BF MIXER AMP
Q37 2SC1009A U BUFF
Q38 2SA1226 U CLAMPER
Q39 2SC1009A SC BUFF
Q40 2SC1009A SC BUFF
Q41 2SC1009A SC BUF
Q42 2SC1009A
S1 V AXIS ON/OFF
S2 U AXIS ON/OFF
S3 BARS
EBU
95%
CN3
CN4
A5 BF IN
B6 SC IN
B5 SC (GND)
RV14: BURST PHASE
RV15: BURST LEVEL
RV16: U LEVEL
RV17: U BLK BAL
U BLACK BAL
LV2: SC PHASE
TP6
TP7
TP8

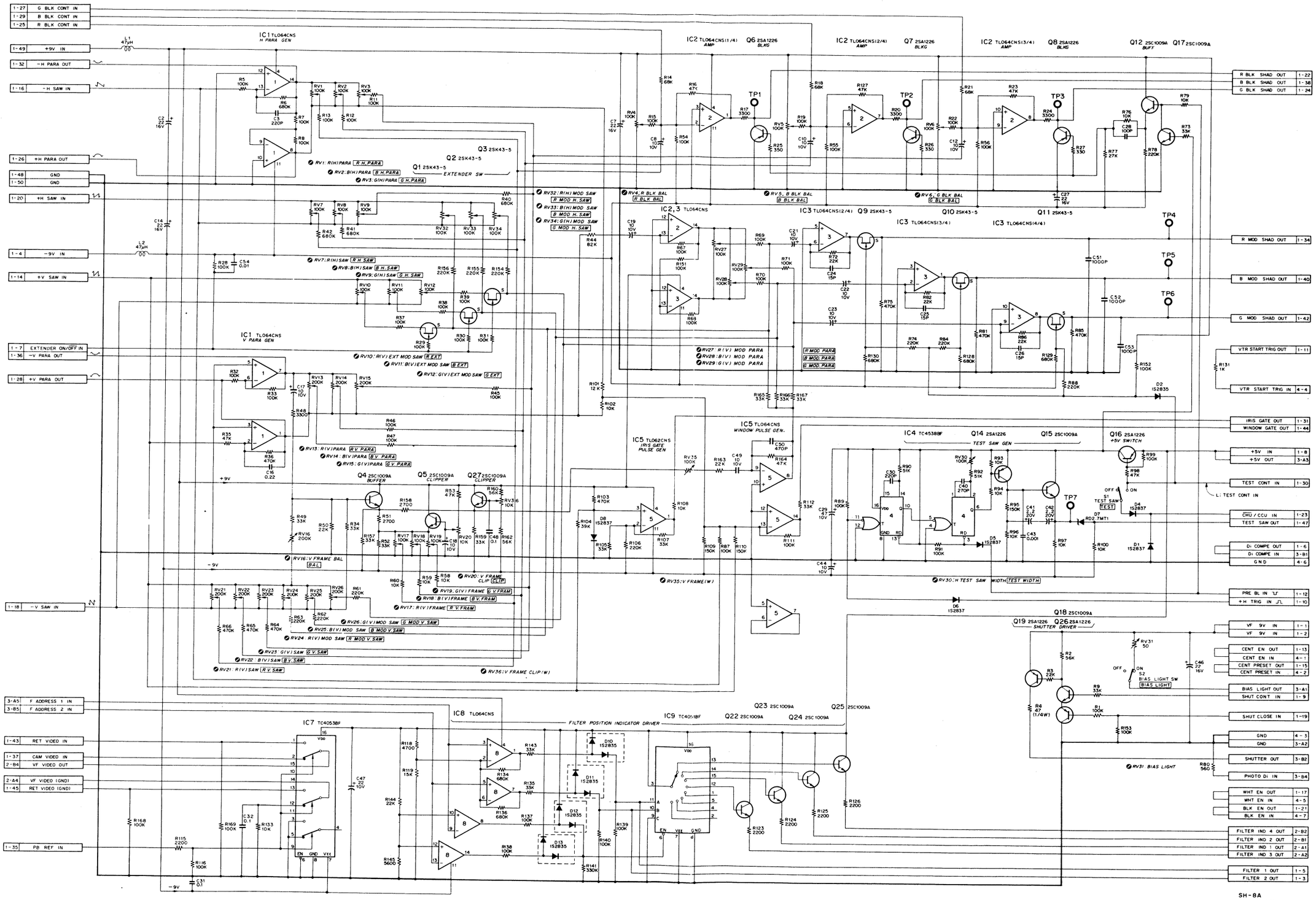


EN-33A
BVP-3AP (EK)
BVP-30AP (EK)

SH-8A BOARD


1-27 G BLK CONT IN
1-29 B BLK CONT IN
1-25 R BLK CONT IN
1-49 +9V IN
1-32 -H PARA OUT
1-16 -H SAW IN
1-26 +H PARA OUT
1-48 GND
1-50 GND
1-20 +H SAW IN
1-4 -9V IN
1-14 +V SAW IN
1-7 EXTENDER ON/OFF IN
1-36 -V PARA OUT
1-28 +V PARA OUT
1-18 -V SAW IN
3-A5 F ADDRESS 1 IN
3-B5 F ADDRESS 2 IN
1-43 RET VIDEO IN
1-37 CAM VIDEO IN
2-B4 VF VIDEO OUT
2-A4 VF VIDEO (GND)
1-45 RET VIDEO (GND)
1-35 PB REF IN
IC1 TL064CNS H PARA GEN
IC2 TL064CNS(1/4) AMP
Q6 2SA1226 BLKG
IC1 TL064CNS V PARA GEN
IC2,3 TL064CNS
IC5 TL064CNS WINDOW PULSE GEN.
IC5 TL062CNS IRIS GATE PULSE GEN
Q1 2SK43-5 EXTENDER SW
Q2 2SK43-5
Q3 2SK43-5
Q4 2SC1009A BUFFER
Q5 2SC1009A CLIPPER
Q27 2SC1009A CLIPPER
IC7 TC4053BF
IC8 TL064CNS
IC9 TC4511BF FILTER POSITION INDICATOR DRIVER
Q22 2SC1009A
Q23 2SC100
TP1
RV1: R(H) PARA R H.PARA
RV2: B(H) PARA B H.PARA
RV3: G(H) PARA G H.PARA
RV4: R BLK. BAL R BLK. BAL
RV7: R(H) SAW R H.SAW
RV8: B(H) SAW B H.SAW
RV9: G(H) SAW G H.SAW
RV10: R(V) EXT MOD SAW R EXT
RV11: B(V) EXT MOD SAW B EXT
RV12: G(V) EXT MOD SAW G EXT
RV13: R(V) PARA R V. PARA
RV14: B(V) PARA B V. PARA
RV15: G(V) PARA G V. PARA
RV16: V FRAME BAL BAL
RV17: R(V) FRAME R V. FRAM
RV18: B(V) FRAME B V. FRAM
RV19: G(V) FRAME G V. FRAM
RV20: V FRAME CLIP CLIP
RV21: R(V) SAW R V. SAW
RV22: B(V) SAW B V. SAW
RV23: G(V) SAW G V. SAW
RV24: R(V) MOD SAW R MOD V. SAW
RV25: B(V) MOD SAW B MOD V. SAW
RV26: G(V) MOD SAW G MOD V. SAW
RV27: R(V) MOD PARA
RV28: B(V) MOD PARA
RV29: G(V) MOD PARA
RV32: R(H) MOD SAW R MOD H. SAW
RV33: B(H) MOD SAW B MOD H. SAW
RV34: G(H) MOD SAW G MOD H. SAW
RV35: VIRAAME(W)
RV36: V FRAME CLIP(W)

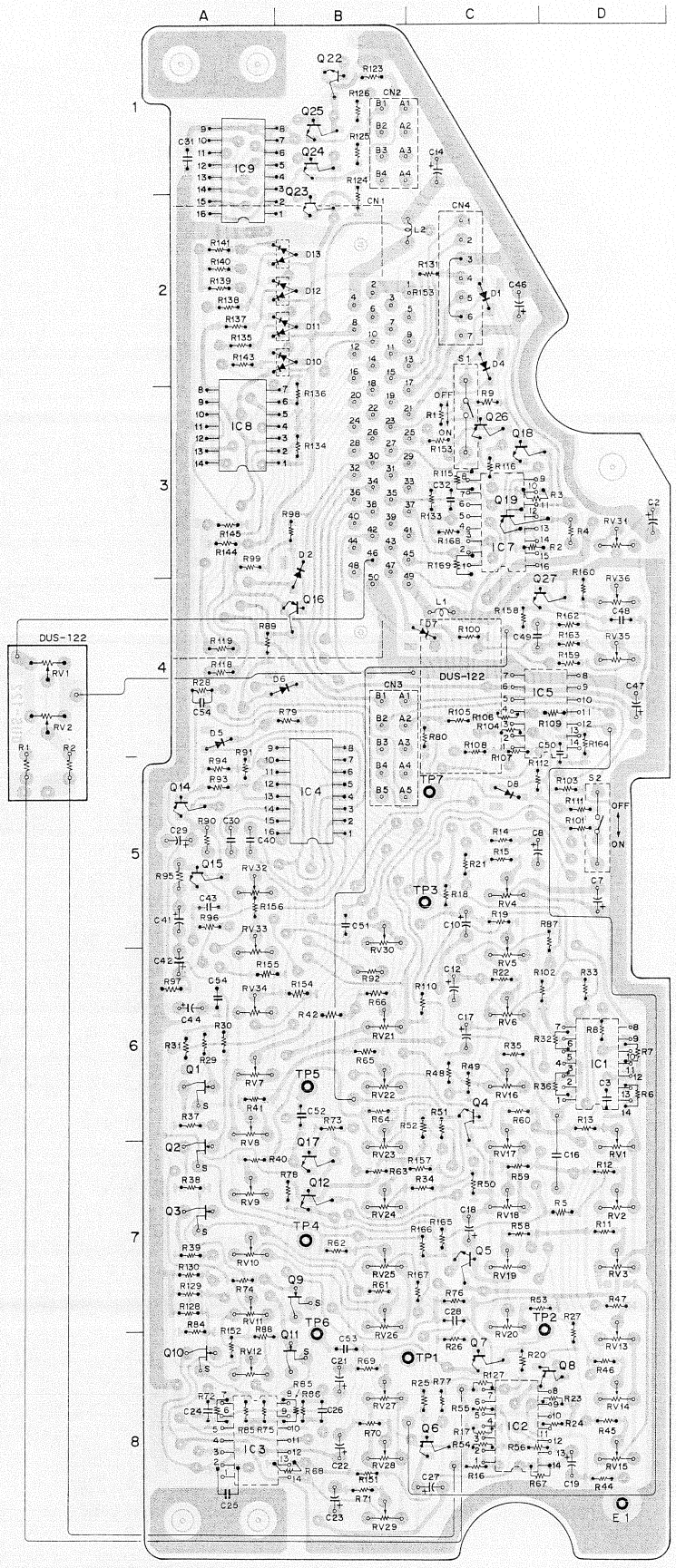
SH-8A BOARD



SH-8A
BVP-3A(J, UC)
BVP-3AP(EK)
BVP-3AN(J)

SH-8A BOARD
– SOLDERING SIDE –

PARTS NO. 1-608-890-14



CN1 B - 2
CN2 B - 1
CN3 B - 4
CN4 C - 2

E1 D - 8

D1 C - 2
D2 B - 3
D4 C - 2
D5 A - 4
D6 B - 4
D7 C - 4
D8 C - 5
D10 B - 2
D11 B - 2
D12 B - 2
D13 B - 2

IC1 D - 6
IC2 C - 8
IC3 A - 8
IC4 B - 5
IC5 D - 4
IC7 C - 3
IC8 A - 3
IC9 A - 1

Q1 A - 6
Q2 A - 7
Q3 A - 7
Q4 C - 6
Q5 C - 7
Q6 C - 8
Q7 C - 8
Q8 C - 8
Q9 B - 7
Q10 A - 8
Q11 B - 8
Q12 B - 7
Q14 A - 5
Q15 A - 5
Q16 B - 4
Q17 B - 7
Q18 C - 3
Q19 C - 3
Q22 B - 1
Q23 B - 2
Q24 B - 1
Q25 B - 1
Q27 D - 4

RV1 D - 7
RV2 D - 7
RV3 D - 7
RV4 C - 5
RV5 C - 6
RV6 C - 6
RV7 A - 6
RV8 A - 6
RV9 A - 7
RV10 A - 7
RV11 A - 7
RV12 A - 8
RV13 D - 8
RV14 D - 8
RV15 D - 8
RV16 C - 6
RV17 C - 7
RV18 C - 7
RV19 C - 7
RV20 C - 7
RV21 B - 6
RV22 B - 6
RV23 B - 7
RV24 B - 7
RV25 B - 7
RV26 B - 7
RV27 B - 8
RV28 B - 8
RV29 B - 8
RV31 D - 3
RV32 A - 5
RV33 A - 6
RV34 A - 6
RV35 D - 4
RV36 D - 4

S1 C - 3
S2 D - 5

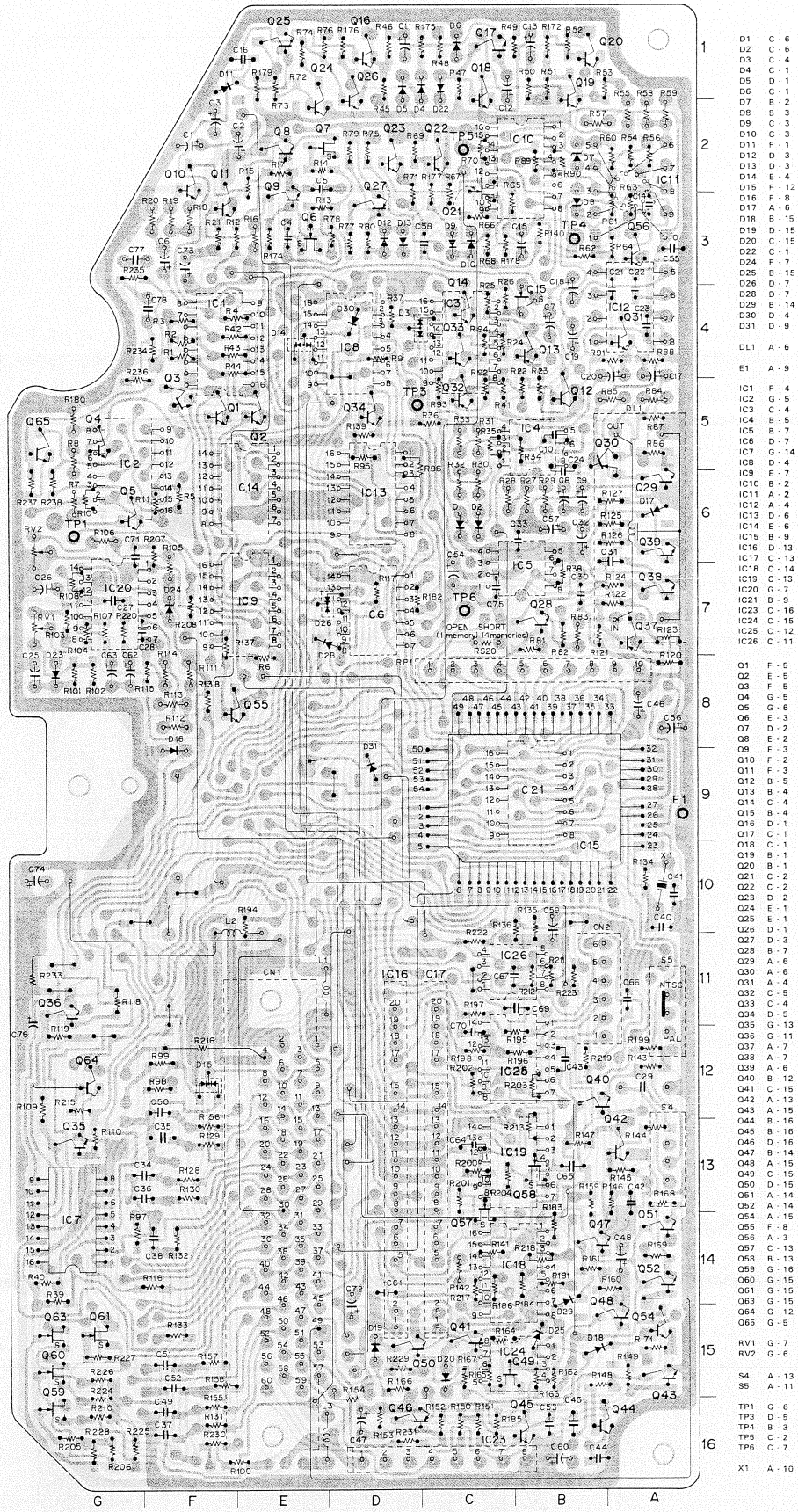
TP1 C - 8
TP2 D - 7
TP3 C - 5
TP4 R - 7
TP5 B - 6
TP6 B - 8
TP7 C - 5

SH - 8A BOARD - 14
BVP - 3A (UJC)
BVP - 3AN (J)
BVP - 3AP (EK)
BVP - 3AS (AE)

AT-16/16N

AT-16/16N BOARD

– SOLDERING SIDE –



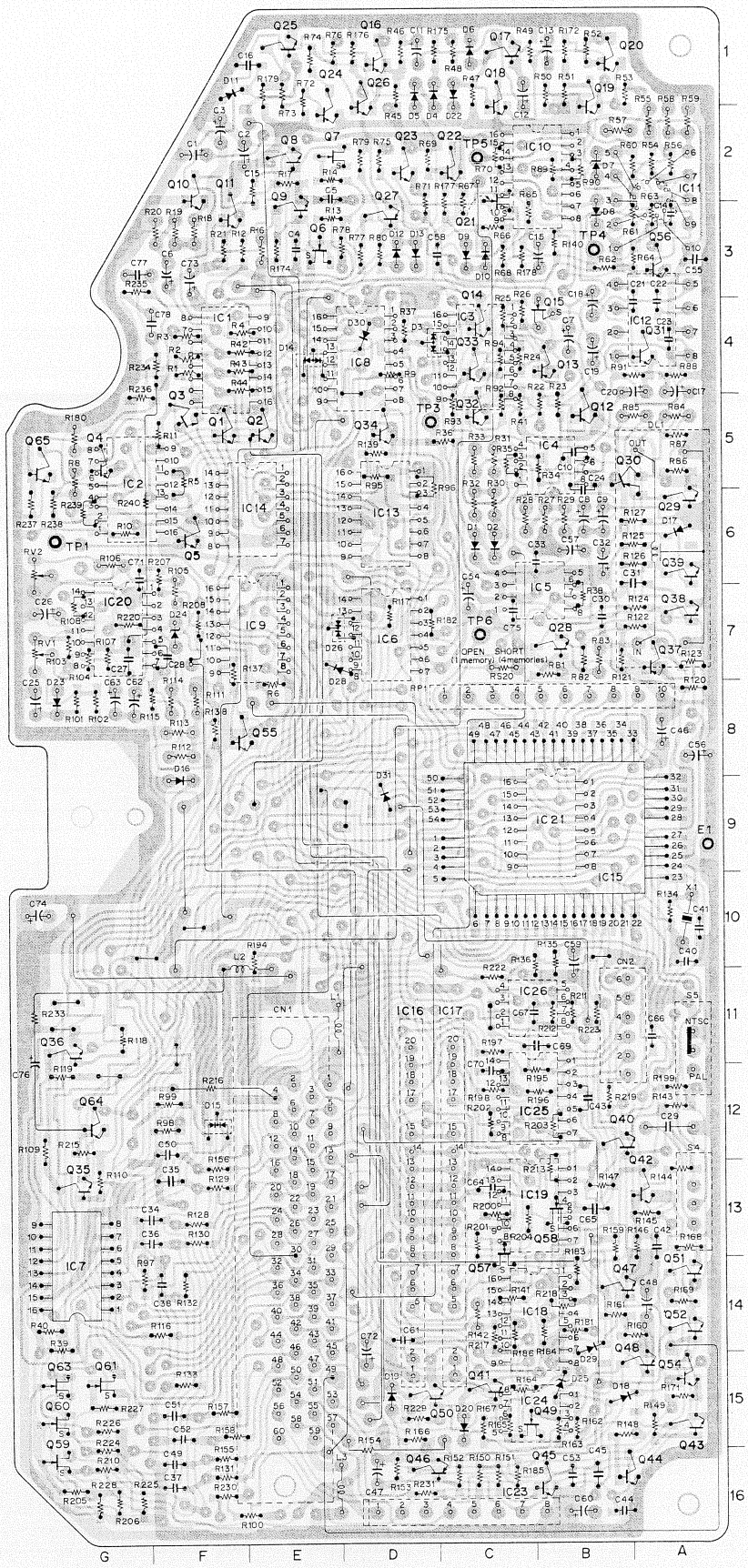
D1	C - 6
D2	C - 6
D3	C - 4
D4	C - 1
D5	D - 1
D6	C - 1
D7	B - 2
D8	B - 3
D9	C - 3
D10	C - 3
D11	F - 1
D12	D - 3
D13	D - 3
D14	E - 4
D15	F - 12
D16	F - 8
D17	A - 6
D18	B - 15
D19	D - 15
D20	C - 15
D22	C - 1
D24	F - 7
D25	B - 15
D26	D - 7
D28	D - 7
D29	B - 14
D30	D - 4
D31	D - 9
DL1	A - 6
E1	A - 9
IC1	F - 4
IC2	G - 5
IC3	C - 4
IC4	B - 5
IC5	B - 7
IC6	D - 7
IC7	G - 14
IC8	D - 4
IC9	E - 7
IC10	B - 2
IC11	A - 2
IC12	A - 4
IC13	D - 6
IC14	E - 6
IC15	B - 9
IC16	D - 13
IC17	C - 13
IC18	C - 14
IC19	C - 13
IC20	G - 7
IC21	B - 9
IC23	C - 16
IC24	C - 15
IC25	C - 12
IC26	C - 11
Q1	F - 5
Q2	E - 5
Q3	F - 5
Q4	G - 5
Q5	G - 6
Q6	E - 3
Q7	D - 2
Q8	E - 2
Q9	E - 3
Q10	F - 2
Q11	F - 3
Q12	B - 5
Q13	B - 4
Q14	C - 4
Q15	B - 4
Q16	D - 1
Q17	C - 1
Q18	C - 1
Q19	B - 1
Q20	B - 1
Q21	C - 2
Q22	C - 2
Q23	D - 2
Q24	E - 1
Q25	E - 1
Q26	D - 1
Q27	D - 3
Q28	B - 7
Q29	A - 6
Q30	A - 6
Q31	A - 4
Q32	C - 5
Q33	C - 4
Q34	D - 5
Q35	G - 13
Q36	G - 11
Q37	A - 7
Q38	A - 7
Q39	A - 6
Q40	B - 12
Q41	C - 15
Q42	A - 13
Q43	A - 15
Q44	B - 16
Q45	B - 16
Q46	D - 16
Q47	B - 14
Q48	A - 15
Q49	C - 15
Q50	D - 15
Q51	A - 14
Q52	A - 15
Q54	F - 8
Q55	A - 3
Q56	C - 13
Q57	B - 13
Q58	G - 16
Q59	G - 15
Q60	G - 15
Q61	G - 15
Q63	G - 12
Q64	G - 5
Q65	
RV1	G - 7
RV2	G - 6
S4	A - 13
S5	A - 11
TP1	G - 6
TP3	D - 5
TP4	B - 3
TP5	C - 2
TP6	C - 7
X1	A - 10

AT-16 BOARD – SOLDERING SIDE –	AT-16N BOARD – SOLDERING SIDE –
1-612-029-15	1-612-029-15
CA-301A(UC)	BVP-3AN(J)
CA-301P(EK)	
BVP-301(J,UC)	
BVP-301AP(EK)	
BVP-301PMB(EZ)	
BVP-3A1(J,UC)	
BVP-3AP(EK)	
BVP-3AS(AE)	

AT-16/16N

AT-16/16N BOARD

– SOLDERING SIDE –



CN1	E - 13
CN2	B - 11
D1	C - 6
D2	C - 6
D3	C - 4
D4	C - 1
D5	D - 1
D6	C - 1
D7	B - 2
D8	B - 3
D9	C - 3
D10	C - 3
D11	F - 1
D12	D - 3
D13	D - 3
D14	E - 4
D15	F - 12
D16	F - 8
D17	A - 6
D18	B - 15
D19	D - 15
D20	C - 15
D22	C - 1
D24	F - 7
D25	B - 15
D26	D - 7
D28	D - 7
D29	B - 14
D30	D - 4
D31	D - 9
DL1	A - 6
E1	A - 9
IC1	F - 4
IC2	G - 5
IC3	C - 4
IC4	B - 5
IC5	B - 7
IC6	D - 7
IC7	G - 14
IC8	D - 4
IC9	E - 7
IC10	B - 2
IC11	A - 2
IC12	A - 4
IC13	D - 6
IC14	E - 6
IC15	B - 9
IC16	D - 13
IC17	C - 13
IC18	C - 14
IC19	C - 13
IC20	G - 7
IC21	B - 9
IC23	C - 16
IC24	C - 15
IC25	C - 12
IC26	C - 11
Q1	F - 5
Q2	E - 5
Q3	F - 5
Q4	G - 5
Q5	F - 6
Q6	E - 3
Q7	D - 2
Q8	E - 2
Q9	E - 3
Q10	F - 2
Q11	F - 3
Q12	B - 5
Q13	B - 4
Q14	C - 4
Q15	B - 4
Q16	D - 1
Q17	C - 1
Q18	C - 1
Q19	B - 1
Q20	B - 1
Q21	C - 2
Q22	C - 2
Q23	D - 2
Q24	E - 1
Q25	E - 1
Q26	D - 1
Q27	D - 3
Q28	B - 7
Q29	A - 6
Q30	A - 6
Q31	A - 4
Q32	C - 5
Q33	C - 4
Q34	D - 5
Q35	G - 13
Q36	G - 11
Q37	A - 7
Q38	A - 7
Q39	A - 6
Q40	B - 12
Q41	C - 15
Q42	A - 13
Q43	A - 15
Q44	B - 16
Q45	B - 16
Q46	D - 16
Q47	B - 14
Q48	A - 15
Q49	C - 15
Q50	D - 15
Q51	A - 14
Q52	A - 14
Q54	A - 15
Q55	F - 8
Q56	A - 3
Q57	C - 13
Q58	B - 13
Q59	G - 16
Q60	G - 15
Q61	G - 15
Q63	G - 15
Q64	G - 12
Q65	G - 5
RV1	G - 7
RV2	G - 6
S4	A - 13
S5	A - 11
TP1	G - 6
TP3	D - 5
TP4	B - 3
TP5	C - 2
TP6	C - 7
X1	A - 10

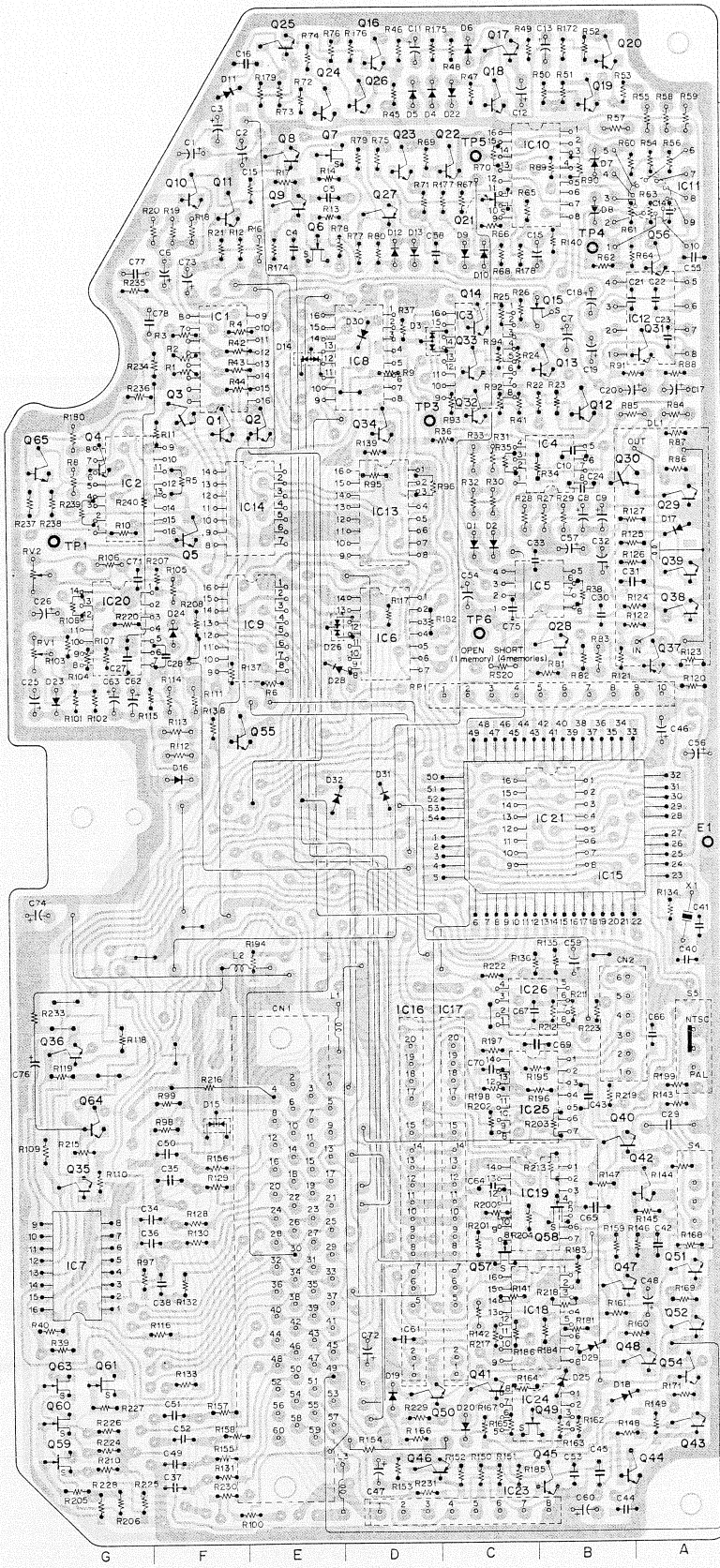
AT-16 BOARD
– SOLDERING SIDE –
1-612-029-16,17
CA-30(30L)(JC)
CA-30P(30PL)(EK)
CA-30PM(BRZ)
BVP-30(J,JC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(J,JC)
BVP-3AP(EK)
BVP-3AS(AE)

AT-16N BOARD
– SOLDERING SIDE –
1-612-029-16,17
BVP-3AN(J)

AT-16/16N

AT-16/16N BOARD
(Except CA-30L/30PL)

PARTS NO.
1-612-029-18



CN1 E - 13
CN2 B - 11

D1 C - 6
D2 C - 6
D3 C - 4
D4 C - 1
D5 D - 1
D6 C - 1
D7 B - 2
D8 B - 3
D9 C - 3
D10 C - 3
D11 F - 1
D12 D - 3
D13 D - 3
D14 E - 4
D15 F - 12
D16 F - 8
D17 A - 6
D18 B - 15
D19 D - 15
D20 C - 15
D22 C - 1
D24 F - 7
D25 B - 15
D26 D - 7
D28 D - 7
D29 B - 14
D30 D - 4
D31 D - 9
D32 E - 9

DL1 A - 6

E1 A - 9

IC1 F - 4
IC2 G - 5
IC3 C - 4
IC4 B - 5
IC5 B - 7
IC6 D - 7
IC7 G - 14
IC8 D - 4
IC9 E - 7
IC10 B - 2
IC11 A - 2
IC12 A - 4
IC13 D - 6
IC14 E - 6
IC15 B - 9
IC16 D - 13
IC17 C - 13
IC18 C - 14
IC19 C - 13
IC20 G - 7
IC21 B - 9
IC23 C - 16
IC24 C - 15
IC25 C - 12
IC26 C - 11

Q1 F - 5
Q2 E - 5
Q3 F - 5
Q4 G - 5
Q5 F - 6
Q6 E - 3
Q7 D - 2
Q8 E - 2
Q9 E - 3
Q10 F - 2
Q11 F - 3
Q12 B - 5
Q13 B - 4
Q14 C - 4
Q15 B - 4
Q16 D - 1
Q17 C - 1
Q18 C - 1
Q19 B - 1
Q20 B - 1
Q21 C - 2
Q22 C - 2
Q23 D - 2
Q24 E - 1
Q25 F - 1
Q26 D - 1
Q27 D - 3
Q28 B - 7
Q29 A - 6
Q30 A - 6
Q31 A - 4
Q32 C - 5
Q33 C - 4
Q34 D - 5
Q35 G - 13
Q36 G - 11
Q37 A - 7
Q38 A - 7
Q39 A - 6
Q40 B - 12
Q41 C - 15
Q42 A - 13
Q43 A - 15
Q44 B - 16
Q45 B - 16
Q46 D - 16
Q47 B - 14
Q48 A - 15
Q49 C - 15
Q50 D - 15
Q51 A - 14
Q52 A - 14
Q54 A - 15
Q55 F - 8
Q56 A - 3
Q57 C - 13
Q58 B - 13
Q59 G - 16
Q60 G - 15
Q61 G - 15
Q63 G - 15
Q64 G - 12
Q65 G - 5

RV1 G - 7
RV2 G - 6

S4 A - 13
S5 A - 11

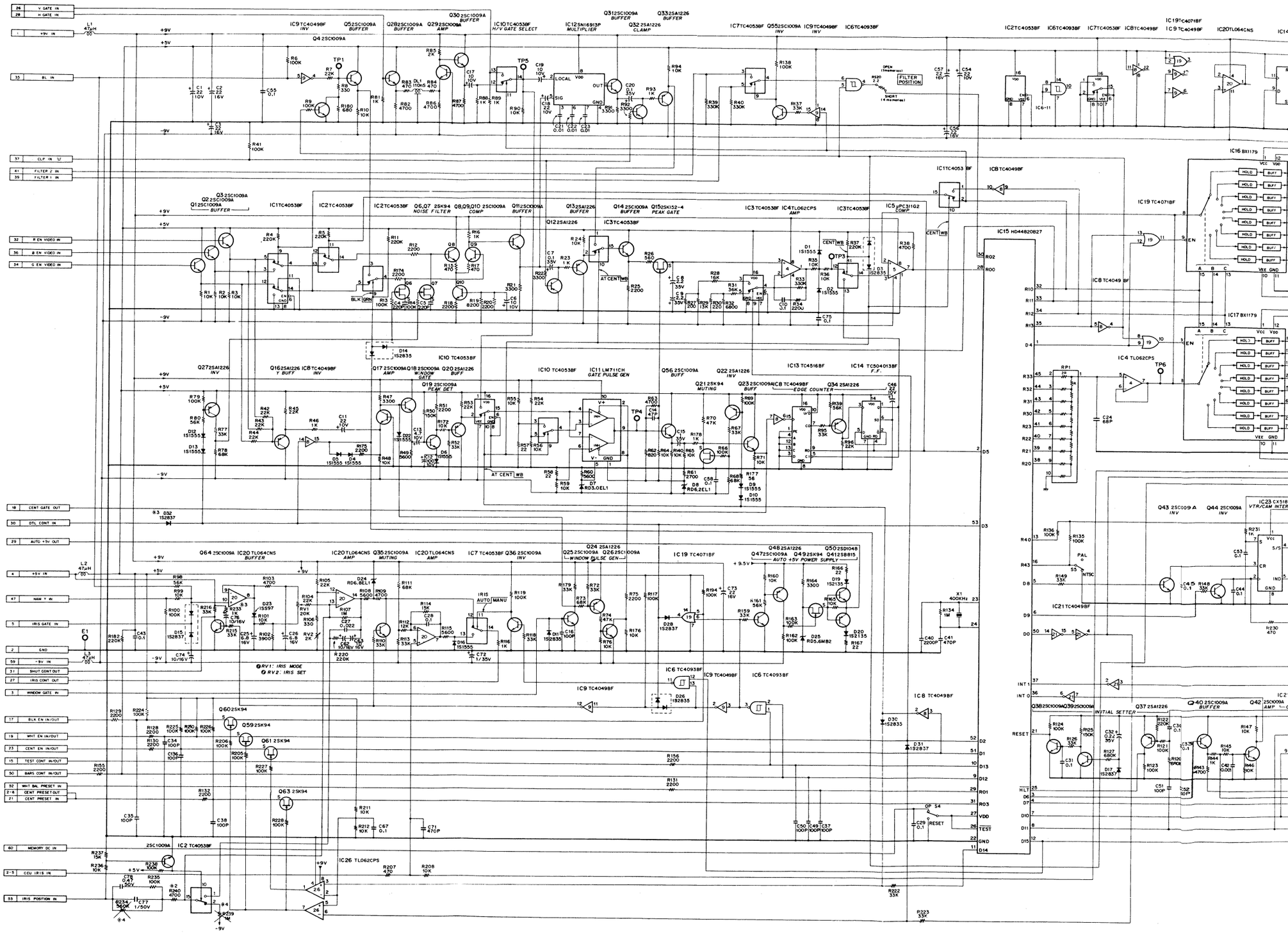
TP1 G - 6
TP3 D - 5
TP4 B - 3
TP5 C - 2
TP6 C - 7

X1 A - 10

AT-16 BOARD
– SOLDERING SIDE –
1-612-029-18
CA-30/30L(J,UC)
CA-30P/30PL(EK)
CA-30PM(BRZ)
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(J,UC)
BVP-3AP(EK)
BVP-3AS(AE)

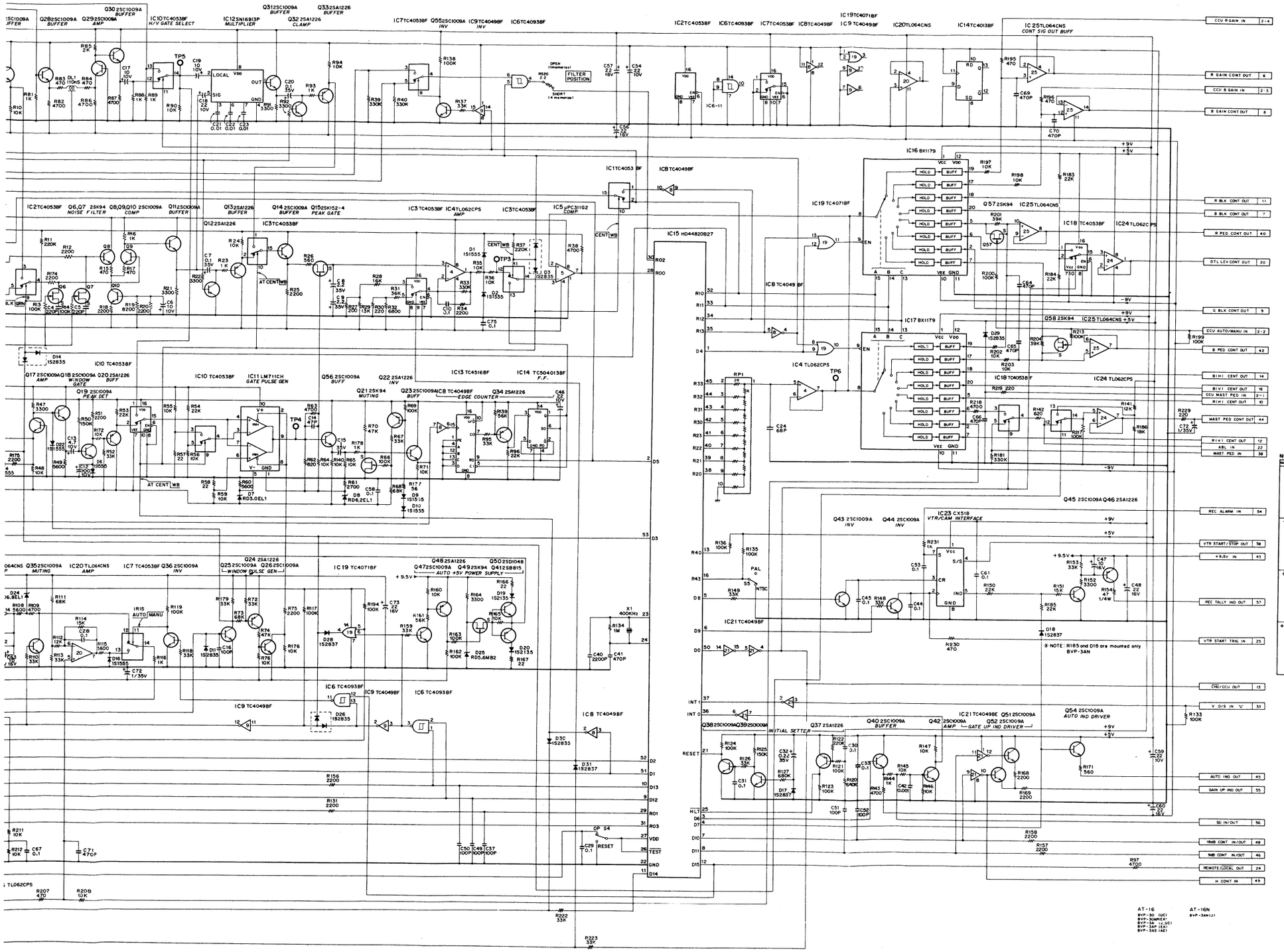
AT-16N BOARD
– SOLDERING SIDE –
1-612-029-18
BVP-3AN(J)

AT-16 BOARD



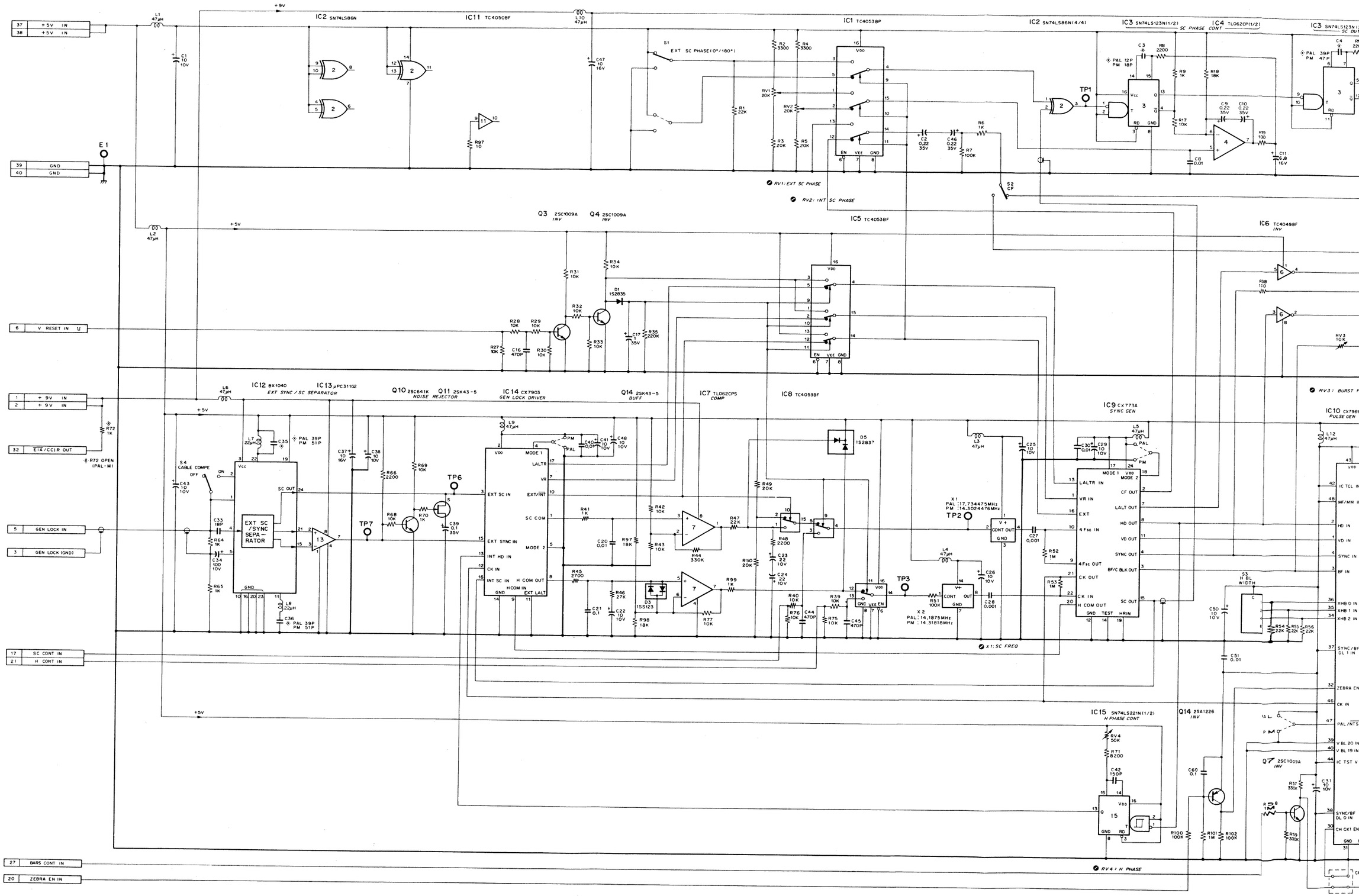
5-51 5-52

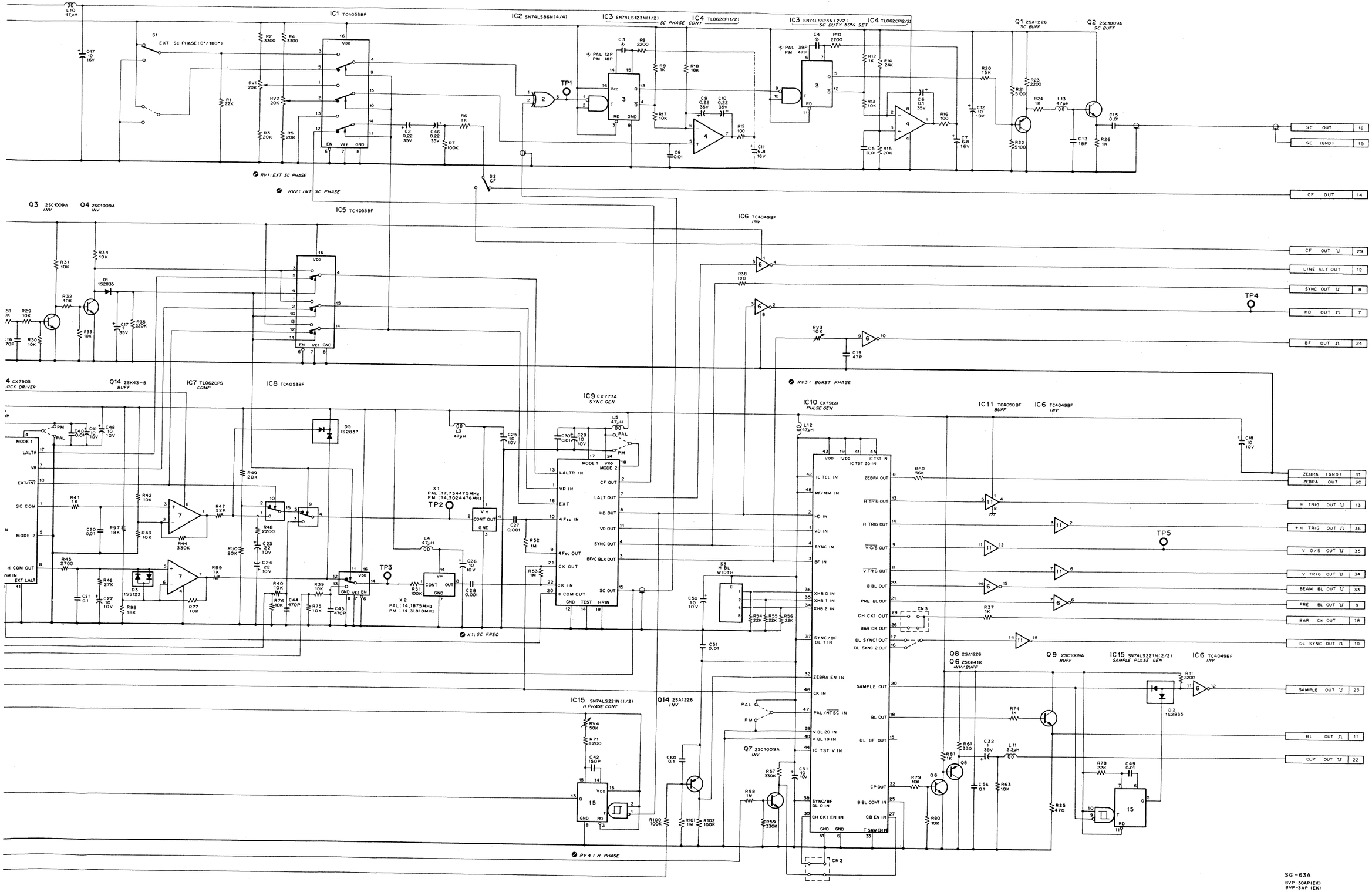
AT-16/16N



MARK	CHANGE INFORMATION	SERIAL NO.
※1	R239 1M ADD	
	BVP-3A	UC:41523~ J:16001~
	BVP-3AP	EK:22001~
	BVP-3AN	J:10107~
	BVP-3AS	AE:30111~
	BVP-30	UC:60401~ J:20008~
	BVP-30AP	EK:10021~
※2	R240 470Ω ADD	
	BVP-3A	J:16101~
	BVP-3AP	EK:22401~
	BVP-3AN	J:10107~
	BVP-3AS	AE:30111~
	BVP-30	UC:60401~ J:20008~
	BVP-30AP	EK:10021~
※3	D32 152837 ADD R233 CARBON 1K CHIP 1K	
	BVP-3A	J:16301~ UC:41901~
	BVP-3AP	EK:22601~
	BVP-3AS	AE:30111~
	BVP-3AN	J:10107~
	BVP-30	J:50046~ UC:60046~
	BVP-30AP	EK:10056~
※4	R234 560K DELETE R239 1M DELETE	
	BVP-3A	J:15401~ UC:42001~
	BVP-3AP	EK:22701~
	BVP-3AS	AE:30111~
	BVP-3AN	J:10107~
	BVP-30	J:50056~ UC:60478~
	BVP-30AP	EK:10096~

SG-63A SG-63A

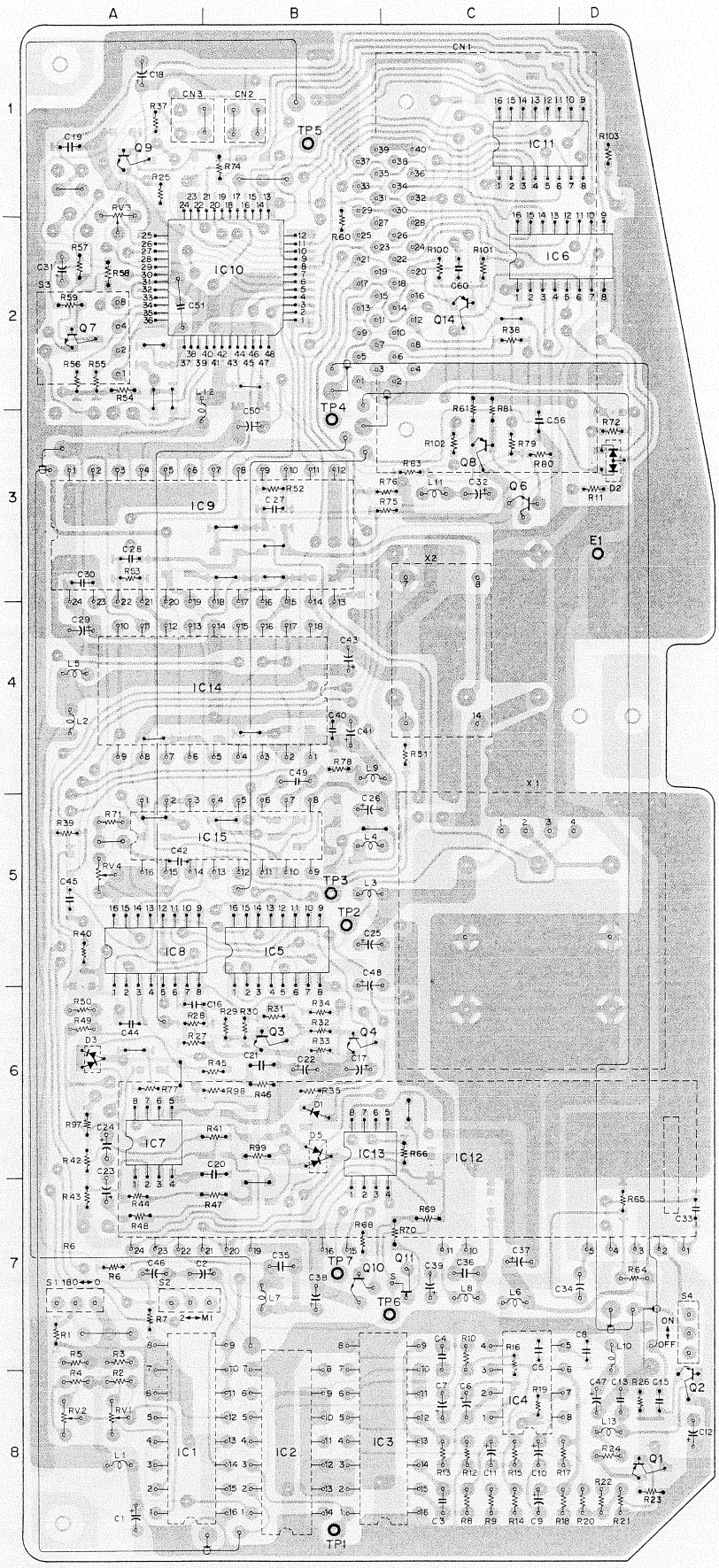

37 +5V IN
38 +5V IN
39 GND
40 GND
E1
6 V RESET IN
1 +9V IN
2 +9V IN
32 ETA/CCIR OUT
5 GEN LOCK IN
3 GEN LOCK (GND)
17 SC CONT IN
21 H CONT IN
27 BARS CONT IN
20 ZEBRA EN IN
IC1 TC4053BP
IC2 SN74LS86N
IC2 SN74LS86N(4/4)
IC3 SN74LS123N(1/2)
IC4 TL062CP(1/2)
IC5 TC4053BF
IC6 TC4049BF
IC7 TL062CPS
IC8 TC4053BF
IC9 CX773A
IC10 CX7969
IC11 TC4050BF
IC12 BX1040
IC13 μPC311G2
IC14 CX7903
IC15 SN74LS221N(1/2)
Q3 2SC1009A
Q4 2SC1009A
Q10 2SC641K
Q11 2SK43-5
Q14 2SK43-5
Q14 2SA1226
Q7 2SC1009A
S1 EXT SC PHASE(0°/180°)
S2 CF
S3 H BL WIDTH
S4 CABLE COMPE
TP1
TP2
TP3
TP6
TP7
X1 PAL:17.734475MHz PM:14.3024476MHz
X2 PAL:14.1875MHz PM:14.31818MHz
RV1:EXT SC PHASE
RV2:INT SC PHASE
RV3:BURST
RV4:H PHASE
X1:SC FREQ
EXT SC /SYNC SEPA-RATOR
PAL 39P PM 51P
PAL 12P PM 18P
PAL 39P PM 47P
INV
EXT SYNC / SC SEPARATOR
NOISE REJECTOR
GEN LOCK DRIVER
BUFF
COMP
SYNC GEN
PULSE GEN
H PHASE CONT
SC PHASE CONT


IC1 TC4053BP
IC2 SN74LS86N(4/4)
IC3 SN74LS123N(1/2) SC PHASE CONT
IC4 TL062CP(1/2)
IC3 SN74LS123N(2/2) SC DUTY 50% SET
IC4 TL062CP(2/2)
Q1 2SA1226 SC BUFF
Q2 2SC1009A SC BUFF
S1 EXT SC PHASE(0°/180°)
RV1:EXT SC PHASE
RV2: INT SC PHASE
S2 CF
SC OUT 16
SC (GND) 15
CF OUT 14
Q3 2SC1009A INV
Q4 2SC1009A INV
IC5 TC4053BF
IC6 TC4049BF INV
CF OUT 29
LINE ALT OUT 12
SYNC OUT 8
HD OUT 7
BF OUT 24
TP4
RV3: BURST PHASE
Q14 2SK43-5 BUFF
IC7 TL062CPS COMP
IC8 TC4053BF
IC9 CX773A SYNC GEN
IC10 CX7969 PULSE GEN
IC11 TC4050BF BUFF
IC6 TC4049BF INV
ZEBRA (GND) 31
ZEBRA OUT 30
-H TRIG OUT 13
+H TRIG OUT 36
V O/S OUT 35
-V TRIG OUT 34
BEAM BL OUT 33
PRE BL OUT 9
BAR CK OUT 18
DL SYNC OUT 10
TP5
X1 PAL:17.734475MHz PM:14.3024476MHz
X2 PAL:14.1875MHz PM:14.3181MHz
TP2
TP3
X1:SC FREQ
IC15 SN74LS221N(1/2) H PHASE CONT
Q14 2SA1226 INV
Q7 2SC1009A INV
RV4:H PHASE
IC15 SN74LS221N(2/2) SAMPLE PULSE GEN
Q8 2SA1226
Q6 2SC641K INV/BUFF
Q9 2SC1009A BUFF
IC6 TC4049BF INV
SAMPLE OUT 23
BL OUT 11
CLP OUT 22
CN2
CN3
S3 H BL WIDTH

Parts No. 1-608-892-25

SG-63A BOARD

– SOLDERING SIDE –



CN1 C-2
CN2 B-1
CN3 A-1

D1 B-6
D2 D-3
D3 A-6
D5 B-6

E1 D-3

IC1 A-8
IC2 B-8
IC3 C-8
IC4 C-8
IC5 B-5
IC6 D-2
IC7 A-6
IC8 A-5
IC9 B-3
IC10 B-2
IC11 C-1
IC12 C-6
IC13 B-6
IC14 B-4
IC15 B-5

Q1 D-8
Q2 D-8
Q3 B-6
Q4 B-6
Q6 C-3
Q7 A-2
Q8 C-3
Q9 A-1
Q10 B-7
Q11 C-7
Q14 C-2

RV1 A-8
RV2 A-8
RV3 A-1
RV4 A-5

S1 A-7
S2 A-7
S3 A-2
S4 D-7

TP1 B-8
TP2 B-5
TP3 B-5
TP4 B-3
TP5 B-1
TP6 C-7
TP7 B-7

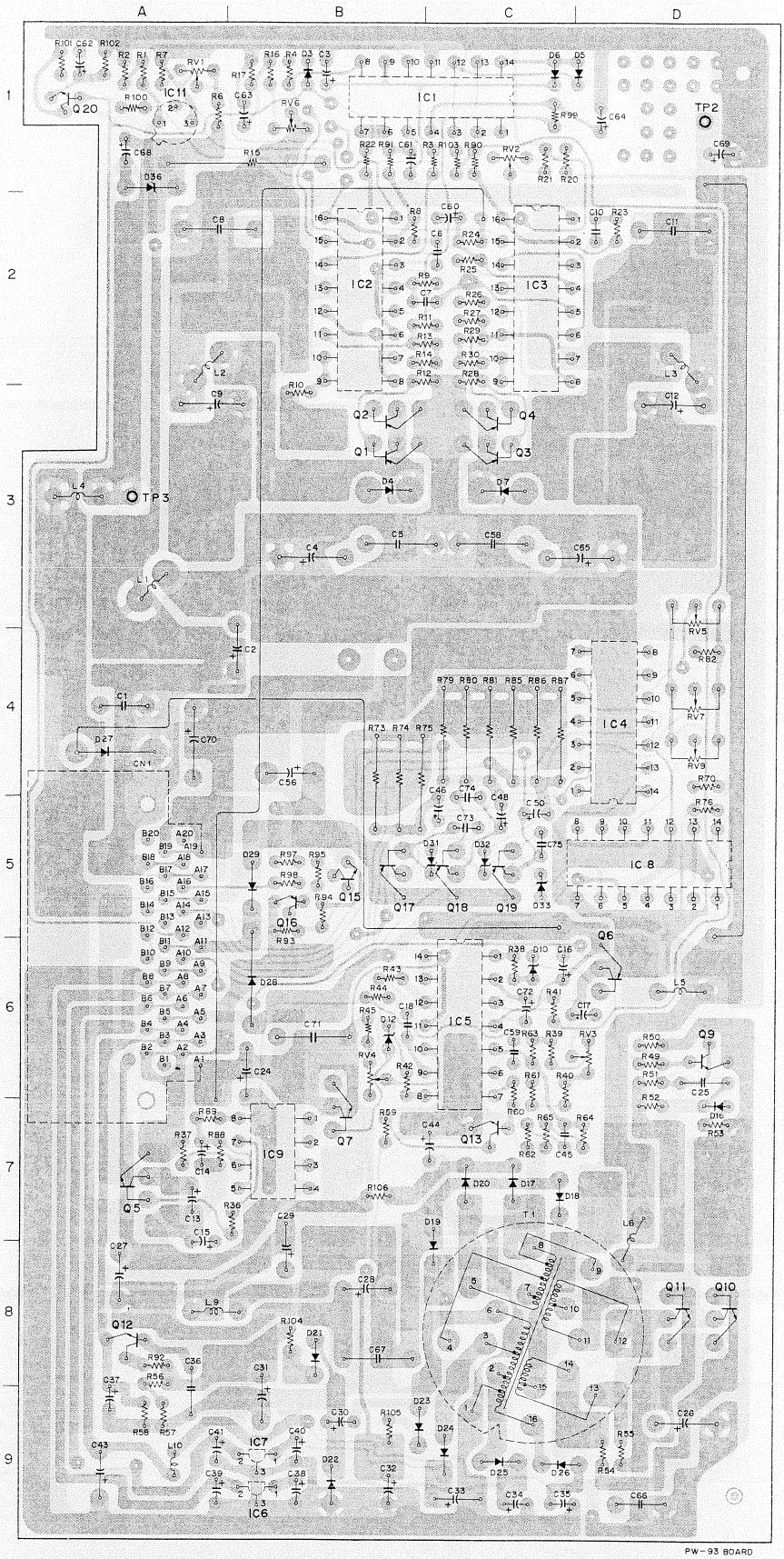
X1 C-5
X2 C-4

SG-63A BOARD
1-608-892-25
BVP-3DAP(EK)
BVP-3AP(EK)

PW-93 BOARD

— SOLDERING SIDE —

PARTS No. 1-608-889-16



CN1 A - 5

D3 B - 1
D4 B - 3
D5 D - 1
D6 C - 1
D7 C - 3
D10 C - 6
D12 B - 6
D16 D - 6
D17 C - 7
D18 C - 7
D19 C - 7
D20 C - 7
D21 B - 8
D22 B - 9
D23 B - 9
D24 D - 9
D25 D - 9
D26 D - 9
D27 A - 4
D28 B - 6
D29 B - 5
D31 C - 5
D32 C - 5
D33 C - 5
D36 A - 1

IC1 B - 1
IC2 B - 2
IC3 C - 2
IC4 D - 4
IC5 C - 6
IC6 B - 9
IC7 B - 9
IC8 D - 5
IC9 B - 7
IC11 A - 1

Q1 B - 3
Q2 B - 3
Q3 C - 3
Q4 C - 3
Q5 A - 7
Q6 D - 6
Q7 B - 7
Q9 D - 6
Q10 D - 8
Q11 D - 8
Q12 A - 8
Q13 C - 7
Q15 B - 5
Q16 B - 5
Q17 B - 5
Q18 C - 5
Q19 C - 5
Q20 A - 1

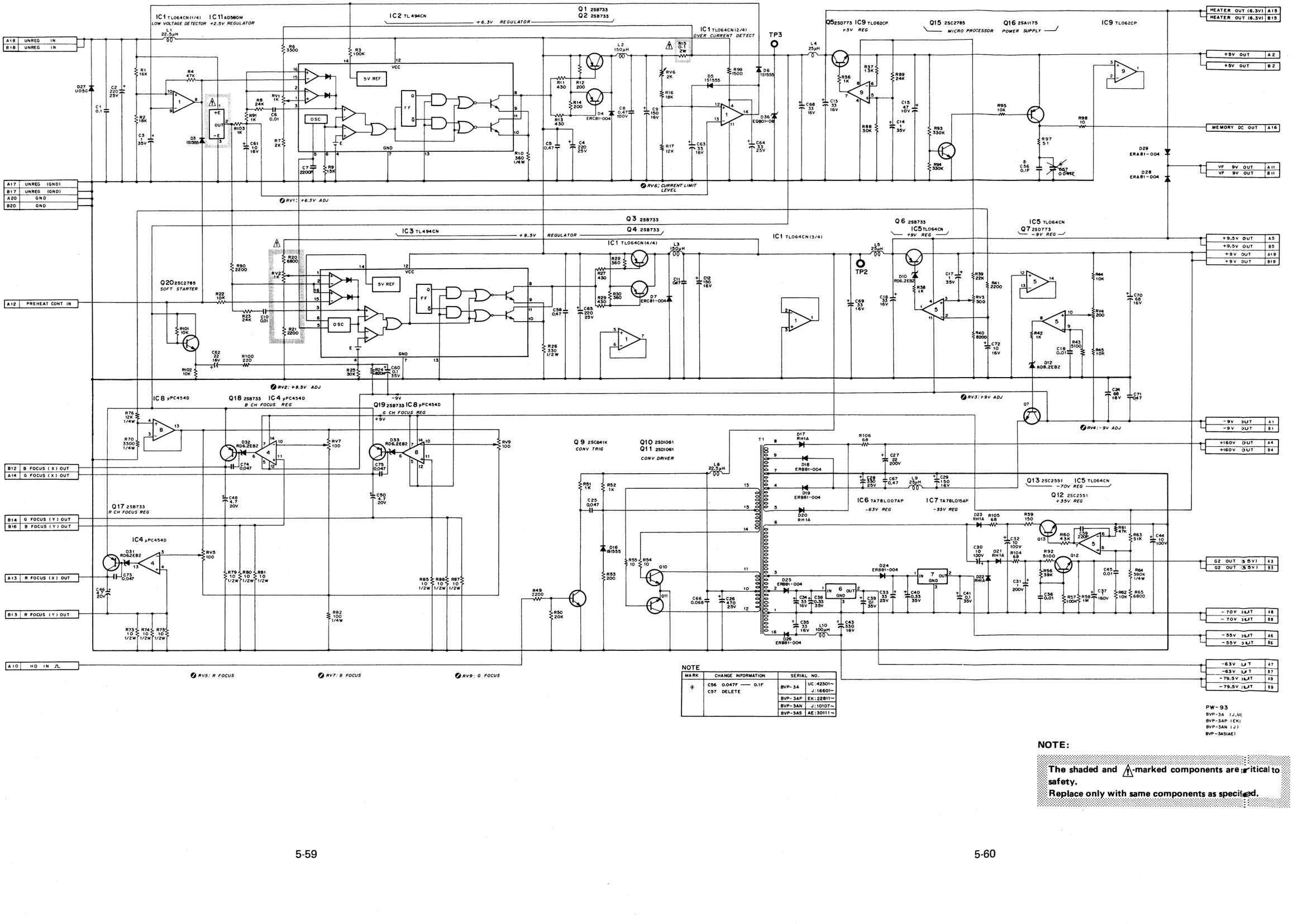
RV1 A - 1
RV2 C - 1
RV3 D - 6
RV4 B - 6
RV5 D - 3
RV6 B - 1
RV7 D - 4
RV9 D - 4

T1 C - 8

TP2 D - 1
TP3 A - 3

PW-93 BOARD
1-608-889-16
BVP-3
BVP-3P
BVP-3A(AE)
BVP-3A (JJUC)
BVP-3AN(JJ)
BVP-3AP(EK)

PW-93 BOARD



NOTE

MARK	CHANGE INFORMATION	SERIAL NO.	
※	C56 0.047F → 0.1F C57 DELETE	BVP-3A	UC:42301~ J:16601~
		BVP-3AP	EK:22811~
		BVP-3AN	J:10107~
		BVP-3AS	AE:30111~

PW-93
BVP-3A (J,UC
BVP-3AP (EK)
BVP-3AN (J)
BVP-3AS(AE)

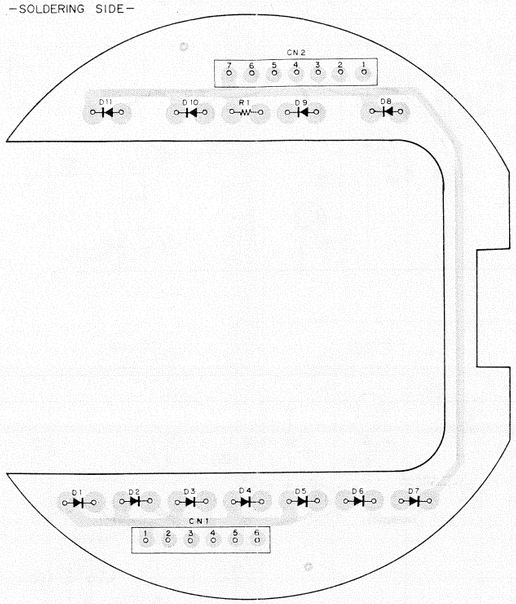
NOTE:

The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

LP-28, MC-19
SW-80, VF-22

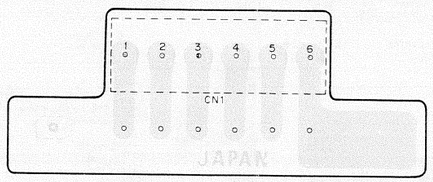
VIEW FINDER
LP-28 BOARD
MC-19 BOARD
SW-80 BOARD
VF-22 BOARD

LP-28 BOARD
– SOLDERING SIDE –



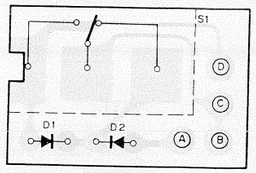
1-612-777-11
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

MC-19 BOARD
– SOLDERING SIDE –



MC-19 BOARD
1-606-127-12
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

SW-80 BOARD
– SOLDERING SIDE –

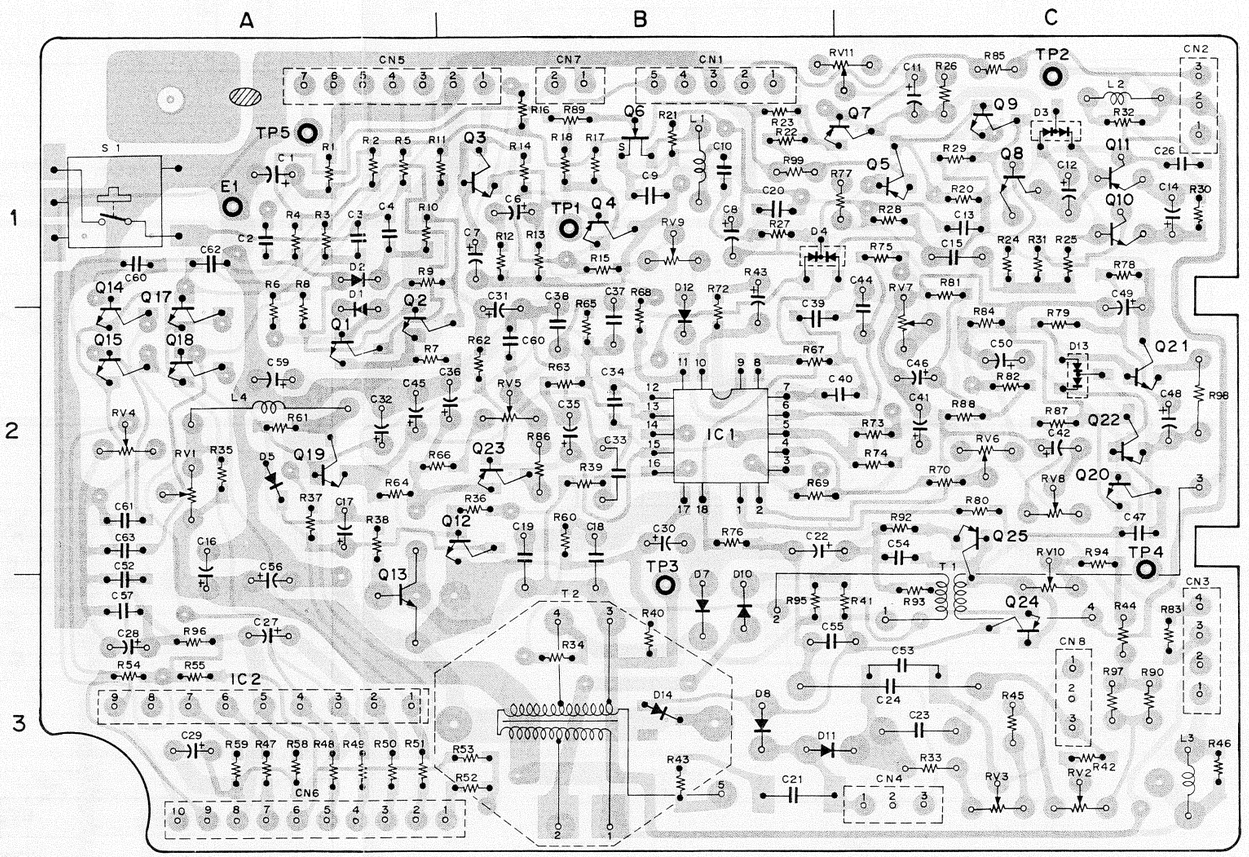


1-612-778-11
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

VF-22 BOARD
– SOLDERING SIDE –

Parts. No. 1-612-611-**13**

VF-22 BOARD
– SOLDERING SIDE –



CN1	B	-1	RV1	A	-2
CN2	C	-1	RV2	C	-3
CN3	C	-3	RV3	C	-3
CN4	C	-3	RV4	A	-2
CN5	A	-1	RV5	B	-2
CN6	A	-3	RV6	C	-2
CN7	B	-1	RV7	C	-2
CN8	C	-3	RV8	C	-2
			RV9	B	-1
D1	A	-2	RV10	C	-3
D2	A	-1	RV11	C	-1
D3	C	-1			
D4	B	-1	S1	A	-1
D5	A	-2			
D7	B	-3	TP1	B	-1
D8	B	-3	TP2	C	-1
D10	B	-3	TP3	B	-3
D11	B	-3	TP4	C	-2
D12	B	-2	TP5	A	-1
D13	C	-2			
D14	B	-3			
E1	A	-1			
IC1	B	-2			
IC2	A	-3			
Q1	A	-2			
Q2	A	-2			
Q3	B	-1			
Q4	B	-1			
Q5	C	-1			
Q6	B	-1			
Q7	C	-1			
Q8	C	-1			
Q9	C	-1			
Q10	C	-1			
Q11	C	-1			
Q12	B	-2			
Q13	A	-3			
Q14	A	-2			
Q15	A	-2			
Q17	A	-2			
Q18	A	-2			
Q19	A	-2			
Q20	C	-2			
Q21	C	-2			
Q22	C	-2			
Q23	B	-2			
Q24	C	-3			
Q25	C	-2			

1-612-611-13
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

VIEWFINDER
LP-28 BAORD
MC-19 BOARD
SW-80 BOARD
VF-22 VOARD

VF-22

CN101
MALE
—WIRING SIDE—

CN103

1	FILTER POS 1 IN
2	FILTER POS 2 IN
3	FILTER POS 3 IN
4	FILTER POS 4 IN
5	GAIN UP IND IN
6	MIC OUT (G)
7	WHT BAL IND IN
8	TAPE IND 1 IN
9	TAPE IND 2 IN
10	ETA/CCIR IN
11	AUDIO·ZEBRA IN
12	VF VIDEO IN
13	AUDIO CONT OUT
14	MIC OUT (Y)
15	MIC OUT (X)
16	BATT ALM IN
17	REC/TALLY IN
18	VF +9V IN
19	GND
20	NC

MC-19
CN1: 6 NC, 5 +9V OUT, 4 GND, 3 MIC IN (Y), 2 MIC IN (X), 1 MIC IN (GND)

MIC1
MIC
FILTER/AUDIO "4" "3" "2" "1"

LP-28
R1 1K
D9 D8 D10 D11 D7 D6
TAPE "REC" "BATT" "5M" "10M" "W/B" CENT "GAIN UP"
D5 D4 D3 D2 D1

TALLY
PL101

SW-80
D2 1SS97
D1 1SS97
S101

TALLY/ZEBRA
OFF
ZEBRA

AUDIO FILTER
S102

AUDIO CONT
RV103 20K

5-2	VF +9V IN
7-2	VF VIDEO IN
7-1	GND
1-4	VF +9V OUT
1-2	BRIGHT CONT IN
1-3	BRIGHT (GND)

BRIGHT
RV102 250K

6-7	LED 5 CONT OUT
6-5	LED 4 CONT OUT
6-4	LED 3 CONT OUT
6-3	LED 2 CONT OUT
6-2	LED 1 CONT OUT
5-3	FILTER POS 1 IN
5-4	FILTER POS 2 IN
5-6	FILTER POS 3 IN
5-5	FILTER POS 4 IN
6-10	AUDIO LEV EN IN
6-1	DC 7V OUT
6-6	DC 9V OUT
5-7	AUDIO·ZEBRA IN
6-9	TALLY/ZEBRA IN
6-8	GND
5-1	ETA/CCIR IN

R47 2200
R48 2200
R49 2200
R50 2200
R51 2200

Q18 DTC144WK
Q17 DTC144WK
Q15 DTC144WK
Q14 DTC144WK
SWITCH

C61 0.01 C62 0.01 C63 0.01

IC2 LB1423N
LED DRIVER

R52 3300 R53 33
R96 1K C28 3.3 16V
RV4 5K
R54 1500 R55 150K
TP5
C27 100 16V
C57 0.022
C52 0.1

REFERENCE VOLTAGE
R59 330
C29 2.2 16V
R58 220K
GND

RV4: AUDIO LEVEL

CONTR
RV101 2K
CONTR OUT 1-5
CONTR IN 1-1

Q8 2SC2362K Q10 2SC2362K
Q9 2SC2757 AMP Q11 2SA1016K K DRIVER

Q4 2SA812
Q5 2SA812 AMP
Q6 2SK94 PEAKING
Q7 2SA812 DC BAL
Q3 2SC1623 SOFT CLAMP

D3 1SS123
L2 5.6μH
R25 10K R31 22
R30 220 R32 3900
C12 35V C14 35V

R1 22
TP1
E1
R16 12K R17 1K R18 470
RV11 50K
R22 1K
R23 10K R24 270K
C6 35V
C1 10 16V
R12 15K R13 470K R14 1200
C7 1 35V R15 27K
C8 35V R20 1200 C20 0.1 C9 0.1
R21 1M L1 10μ C10 100P R89 1M
C11 1 35V R27 100 R26 10K R28 1K C13 47P
D4 1S2837
RV11: DC BALANCE

R85 750K C26 0.1

Q2 2SC1623 Q1 2SC1623
FLIP-FLOP
Q12 2SC1623 Q13 2SC756
H DRIVER

L4 100μH R35 68
RV1 50
TP3
R11 15K C2 0.01 R5 47K R2 15K
R10 1M C4 0.01 C3 0.01 R3 1M
R9 47K R4 47K
D2 1S1555 D1 1S1555
S1 PEAKING
R8 27K R7 3300 R6 27K
C59 3.3 16V R37 820
C56 4.7 16V C16 4.7 16V C17 3.3 16V
R36 1K R38 22
D5 1SS123
RV1: H SIZE

Q19 2SC1623
RIPPLE FILTER
R61 10K
R68 1K

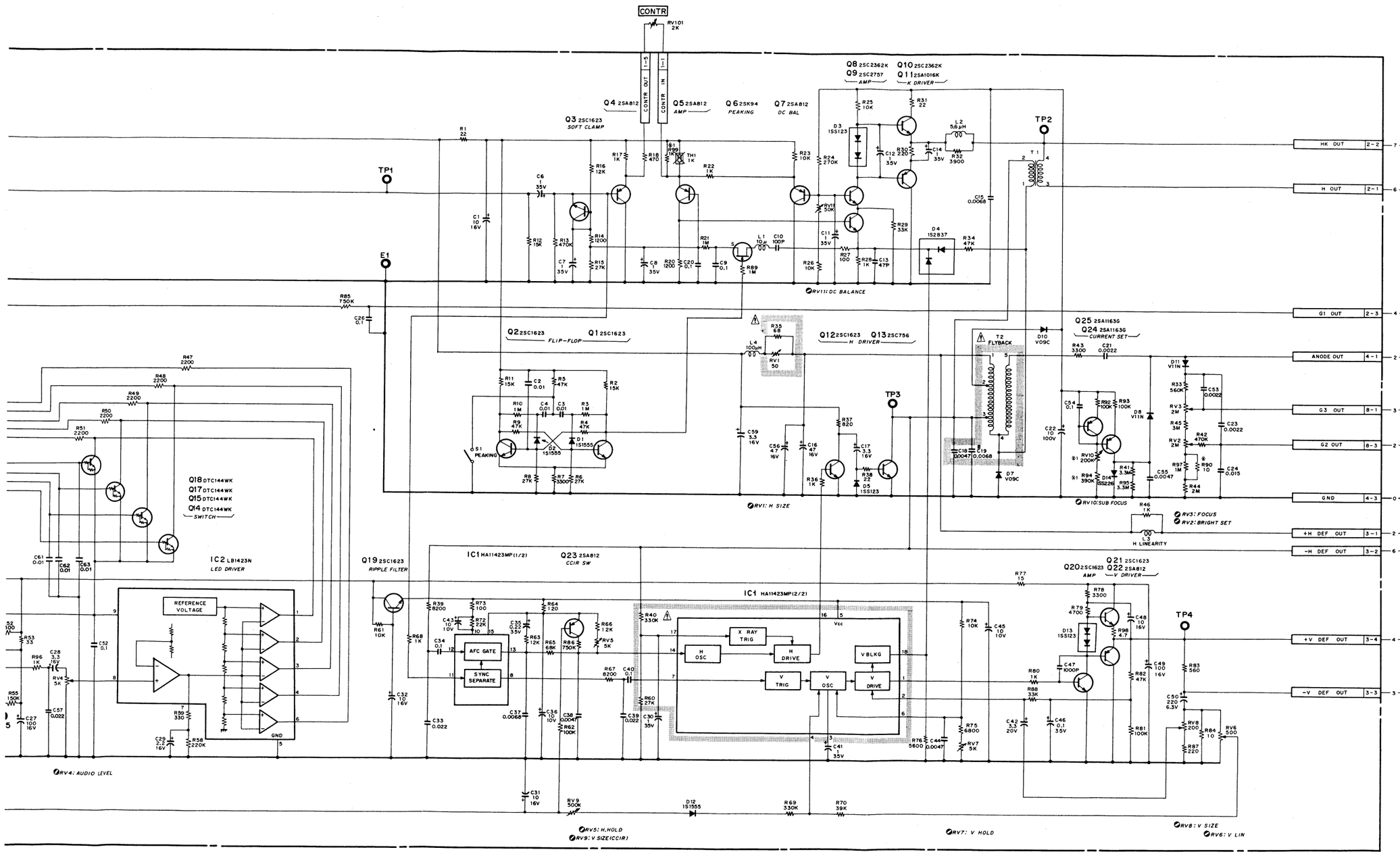
IC1 HA11423MP(1/2)
Q23 2SA812
CCIR SW

IC1 HA11423MP(2/2)

R39 8200 R73 100
C43 10 10V R72 2.2K
C34 0.1
AFC GATE
SYNC SEPARATE
C32 10 16V
C33 0.022
C35 0.22 35V R64 120
R63 12K R65 68K R66 12K R86 750K RV5 5K
C37 0.0068 C36 10 10V C38 0.0047 R62 100K
R67 8200 C40 0.1
R60 27K C39 0.022 C30 1 35V
C31 10 16V RV9 500K
D12 1S1555
R69 330K R70 39K

R40 330K
X RAY TRIG
H OSC
H DRIVE
V TRIG
V OSC
V DRIVE
BLKG
Vcc
C41 1 35V R76 5600 C44 0.0047

RV5: H.HOLD
RV9: V SIZE(CCIR)



※CHANGE INFORMATION

REF. NO.	DESCRIPTION	EFFECTIVE SER. NO.
C19	CHOICE: 0.0039, 0.0043, 0.0047, 0.0051, 0.0056, 0.0062, 0.0068, 0.0075, 0.0082	10001 ~ BVP-3AIUC,J) 10001 ~ BVP-3APIEK) 10001 ~ BVP-3ANIJ)
R90	ADD or OPEN	

C19 ; SELECTABLE PARTS DUE TO FLYBACK PULSE WITH ADJUSTMENTS.

T2 , IF YOU REPLACE THE T2(FLYBACK TRANCE), YOU MUST BE CARRY OUT FLYBACK PULSE WIDTH ADJUSTMENTS.

NOTE

MARK	CHANGE INFORMATION	SERIAL NO.	
※1	R94 330K ⟶ 390K RV10 500K ⟶ 200K TH-1 1K DELETE R99 1K ADD	BVP-3A	UC : 42101 ~ J : 16501 ~
		BVP-3AP	E K : 22801 ~
		BVP-3AN	J : 10107 ~
		BVP-3AS	A E : 30111 ~
		BVP-30	UC : 60511 ~ J : 50066 ~
		BVP-30AP	EK : 10161 ~

VIEWFINDER (NTSC,PAL,SECAM)
BVP-3A (J,UC)
BVP-3AP(EK)
BVP-3AN(J)
BVP-3AS(AE)
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

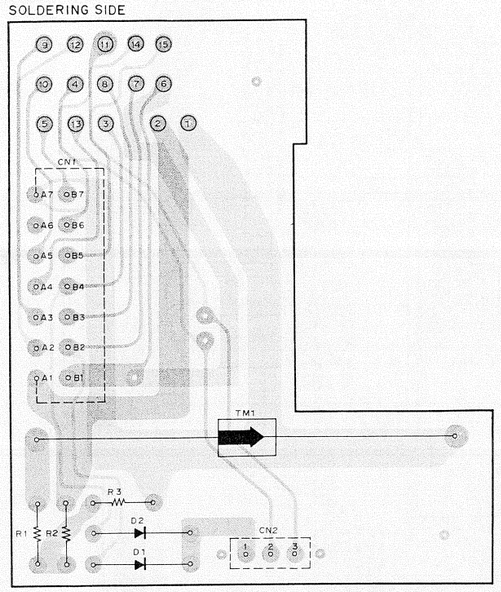
NOTE:

The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

CN-8, 9, 65 BOARD
HN-30 BOARD
HP-14 BOARD
SW-77, 78, 79 BOARD

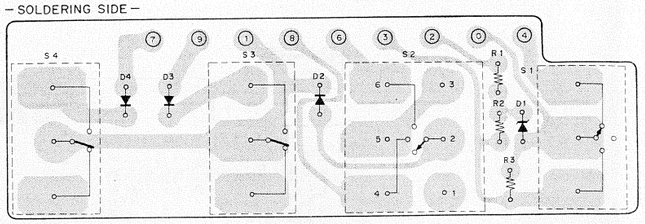
BVP-30(J) up to 50065
BVP-30(UC) up to 60510
BVP-30AP(EK) up to 10160
BVP-3A(J) up to 16415
BVP-3A(UC) up to 42020
BVP-3AN(J) up to 10106
BVP-3AP(EK) up to 22710
BVP-3AS(AE) up to 30110

CN-9 BOARD
SOLDERING SIDE



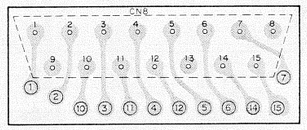
1-612-385-11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AEP)

SW-78 BOARD
-SOLDERING SIDE-



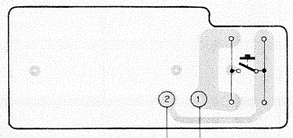
SW-78 BOARD -11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

CN-8 BOARD
-SOLDERING SIDE-

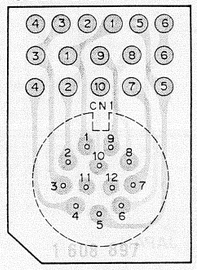


1-612-250-11
CA-30/30L(J,UC)
CA-30F/30FL(EK)
CA-30PM(BRZ)
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

SW-79 BOARD

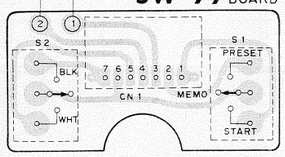


CN-65 BOARD



CN-65 BOARD -13
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

SW-77 BOARD

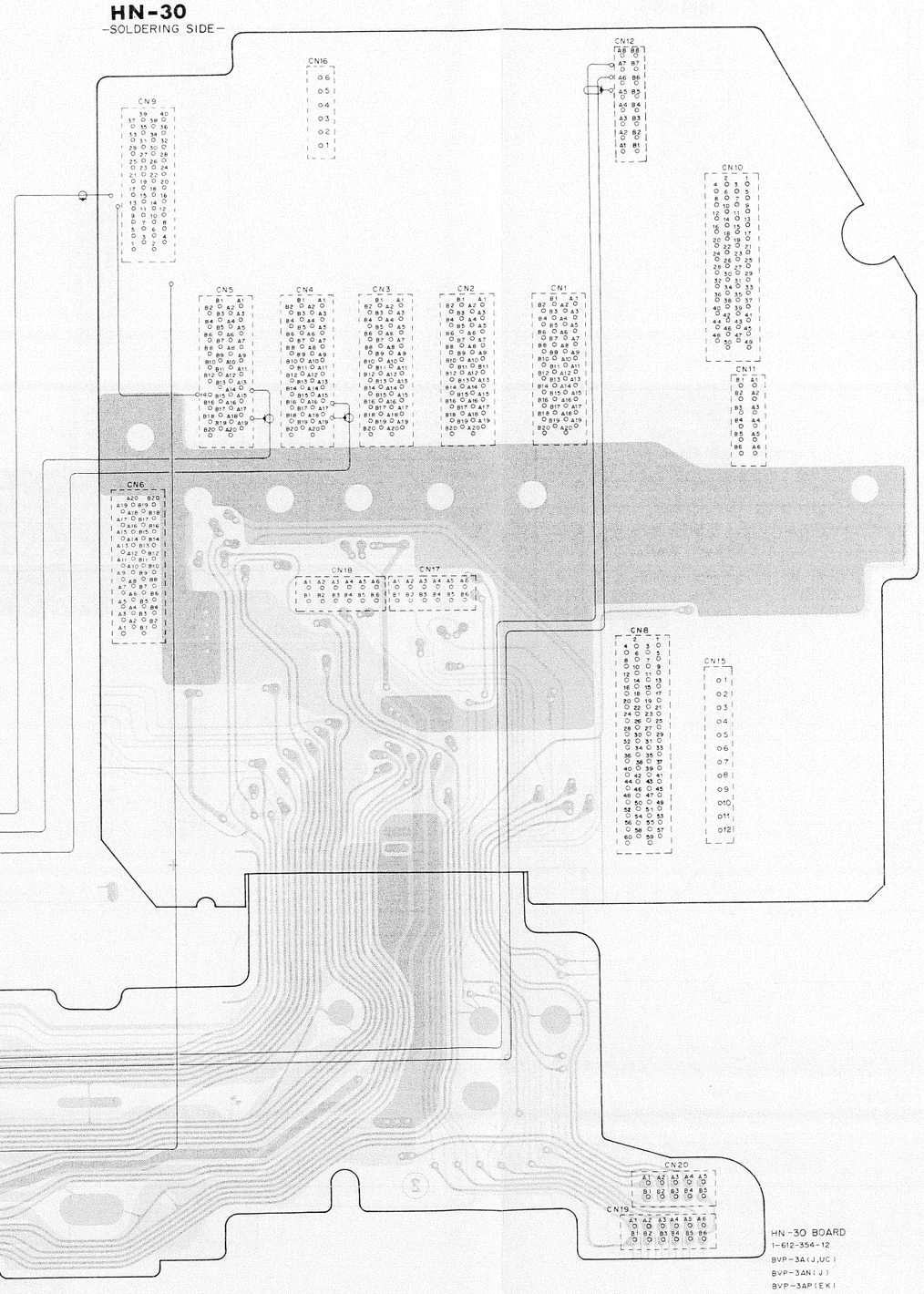


SW-77,79 BOARD -11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

HN-30 (1/2)
— *SOLDERING SIDE* —

PARTS NO.1-612-354-12

HN-30
-SOLDERING SIDE-

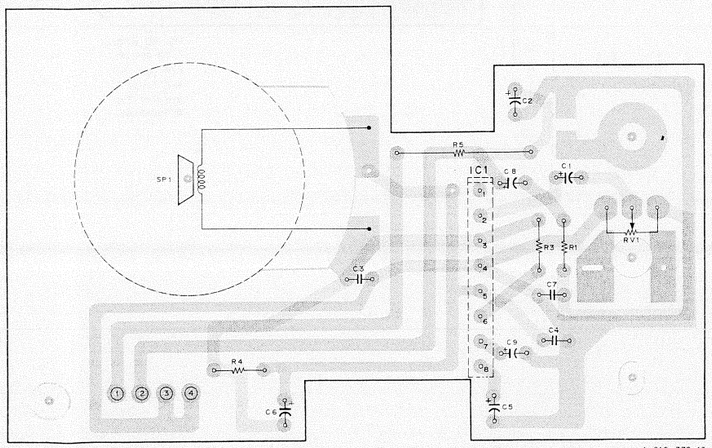


HN-30 BOARD
1-612-354-12
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

5-67(a)

PARTS No. 1-612-379-13

HP-14 BOARD
SOLDERING SIDE

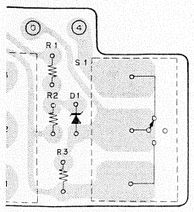


1-612-379-13
BVP-30(UC,J)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(UC,J)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

5-66(a)

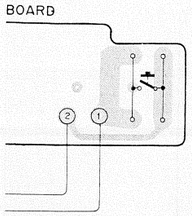
HN-30 (1/2)
— SOLDERING SIDE —

PARTS NO.1-612-354-12

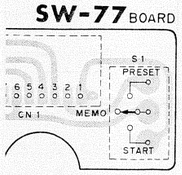


SW-78 BOARD -11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

BOARD

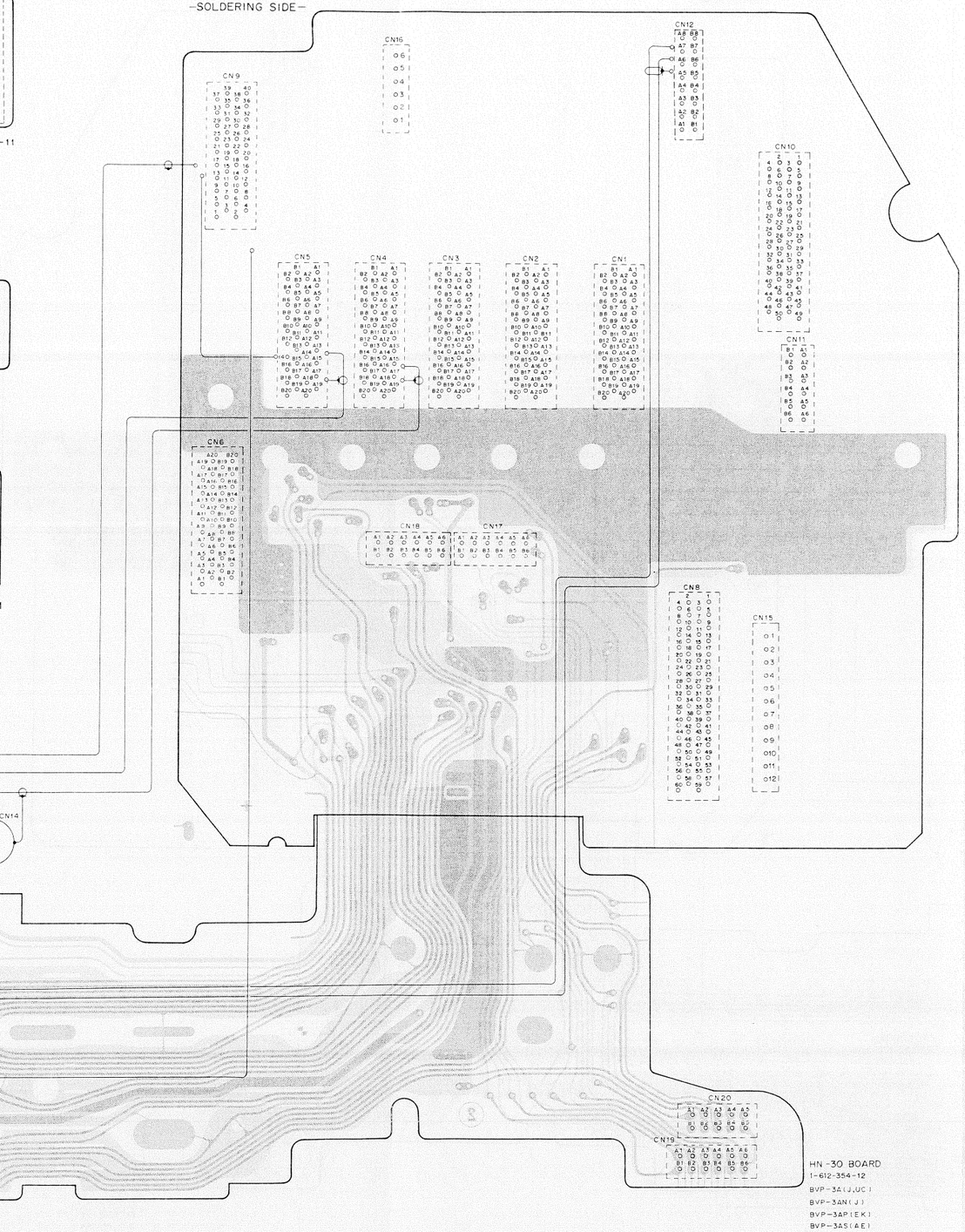


SW-77 BOARD



SW-77,79 BOARD -11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

HN-30
-SOLDERING SIDE-



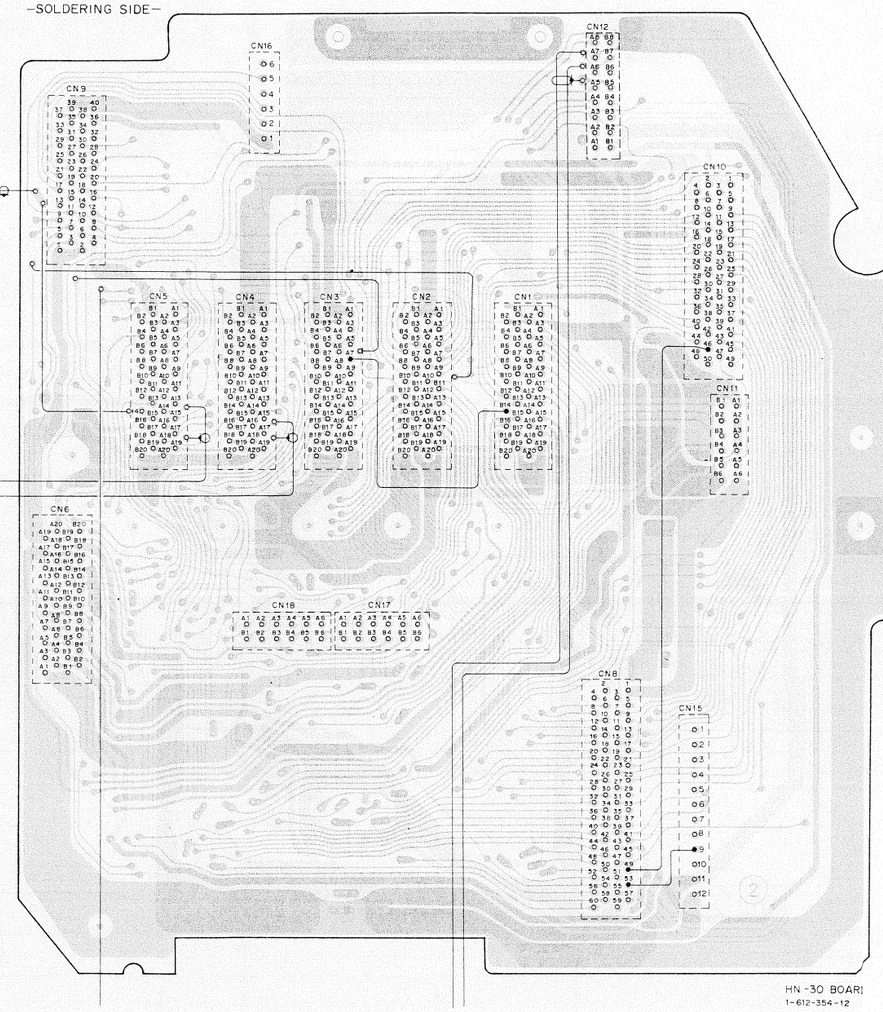
HN-30 BOARD
1-612-354-12
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

5-67(a)

HN-30 (1/2)
— SOLDERING SIDE —

PARTS No. 1-612-354-12

HN-30
-SOLDERING SIDE-



HN-30 BOARD
1-612-354-12
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

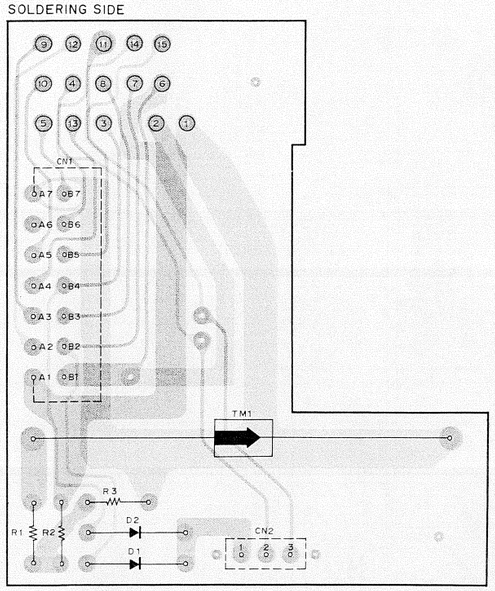
5-68(a)

HN-30

CN-8, 9, 65 BOARD
HN-30 BOARD
HP-14 BOARD
SW-77, 79, 207 BOARD

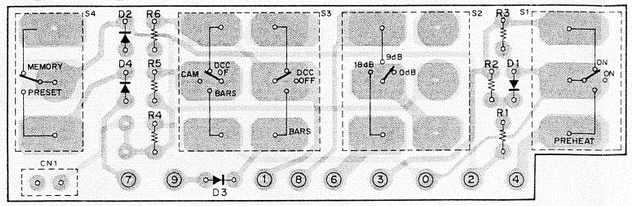
BVP-30(J) 50066 AND HIGHER
BVP-30(UC) 60511AND HIGHER
BVP-30AP(EK) 10161 AND HIGHER
BVP-3A(J) 16416 AND HIGHER
BVP-3A(UC) 42021 AND HIGHER
BVP-3AN(J) 10107 AND HIGHER
BVP-3AP(EK) 22711 AND HIGHER
BVP-3AS(AE) 30111 AND HIGHER

CN-9 BOARD
SOLDERING SIDE



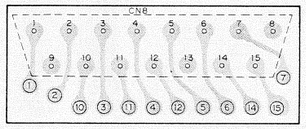
1-612-385-11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AEP)

SW-207 BOARD
-SOLDERING SIDE-



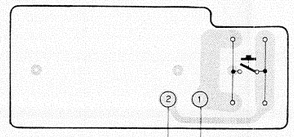
SW-207 BOARD
1-608-942-11
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)

CN-8 BOARD
-SOLDERING SIDE-

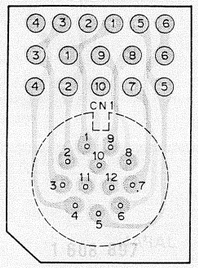


1-612-250-11
CA-30/30L(J,UC)
CA-30P/30FL(EK)
CA-30PM(BRZ)
BVP-30(J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

SW-79 BOARD

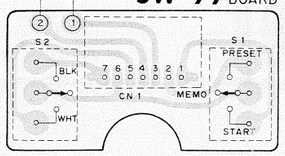


CN-65 BOARD



CN-65 BOARD -13
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

SW-77 BOARD

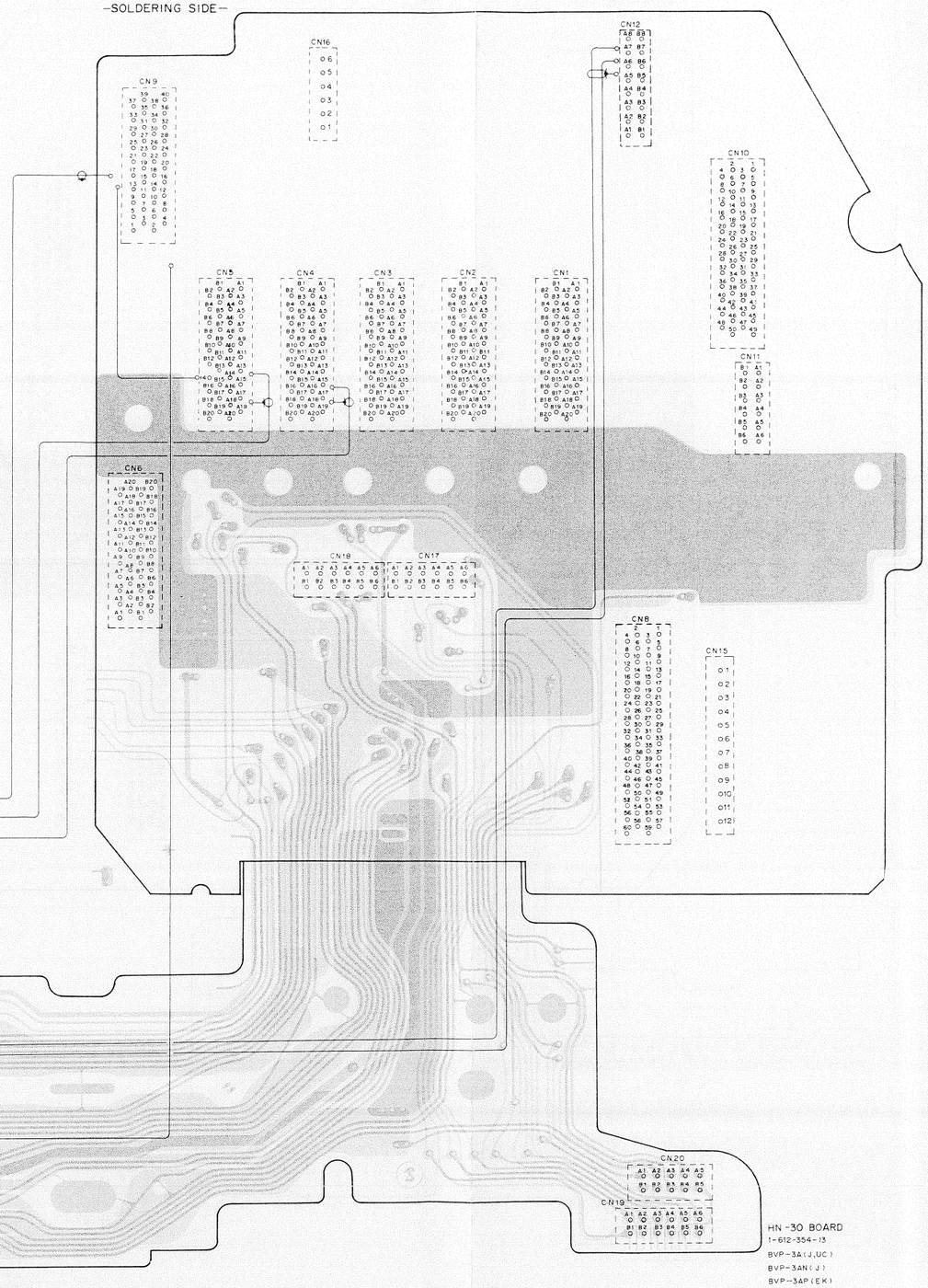


SW-77,79 BOARD -11
BVP-30 (J,UC)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A (J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AEP)

PARTS NO.1-612-354-13

HN-30 (1/2)
— SOLDERING SIDE —

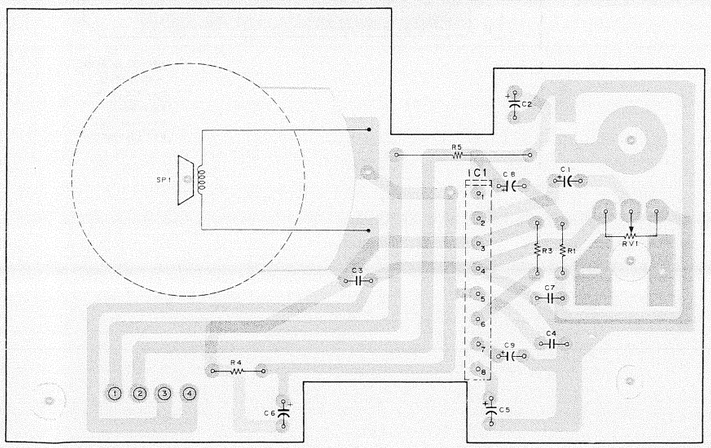
HN-30
-SOLDERING SIDE-



HN-30 BOARD
1-612-354-13
BVP-3A(J,UC)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

PARTS No. 1-612-379-13

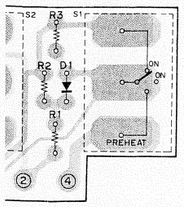
HP-14 BOARD
SOLDERING SIDE



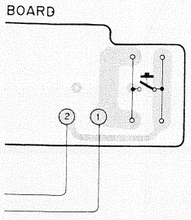
1-612-379-13
BVP-30(UC,J)
BVP-30AP(EK)
BVP-30PM(BRZ)
BVP-3A(UC,J)
BVP-3AN(J)
BVP-3AP(EK)
BVP-3AS(AE)

HN-30 (1/2)
— SOLDERING SIDE —

PARTS NO.1-612-354-13

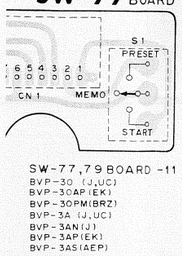


SW-207 BOARD
1-608-942-11
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)
BVP-30 (J,UC)
BVP-30AP (EK)
BVP-30PM (BRZ)



BOARD

SW-77 BOARD



SW-77,79 BOARD -11
BVP-30 (J,UC)
BVP-30AP (EK)
BVP-30PM (BRZ)
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AEP)

HN-30
–SOLDERING SIDE–

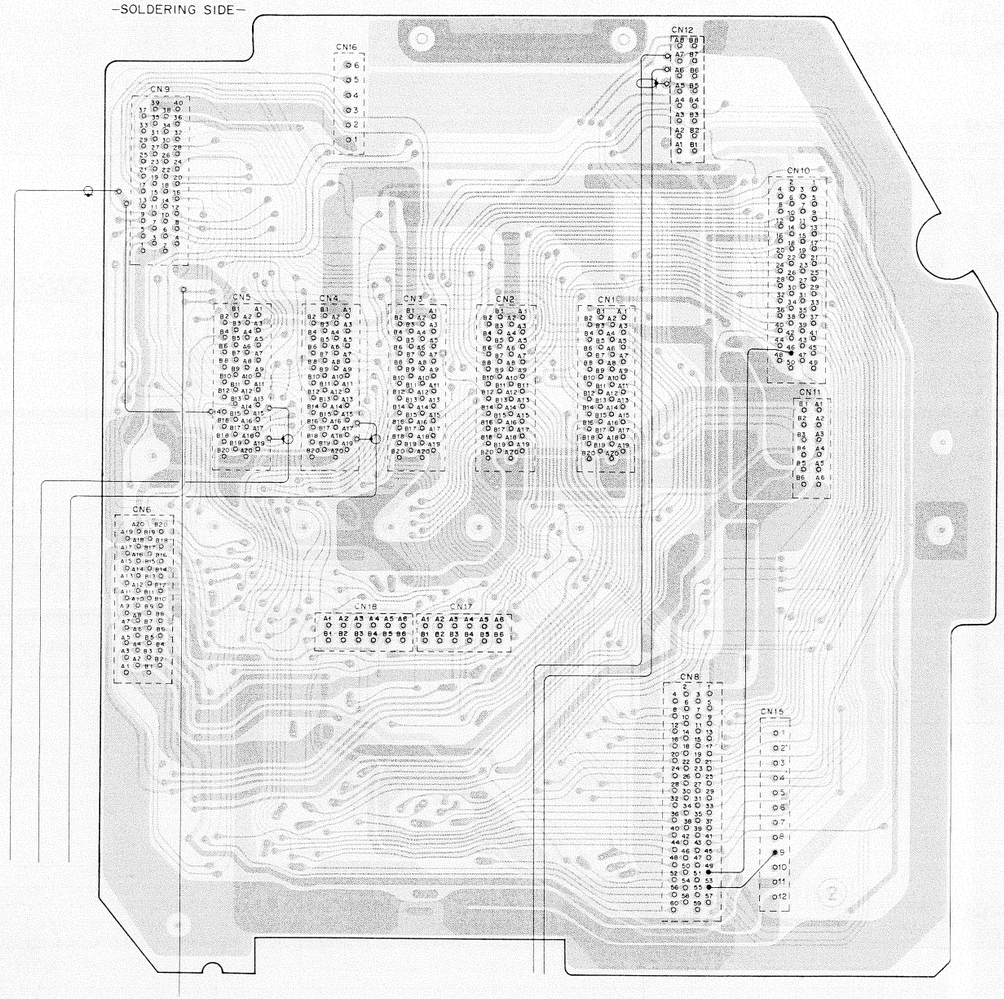
HN-30 BOARD
1-612-354-13
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)

5-67(b)

HN-30 (1/2)
— SOLDERING SIDE —

PARTS NO.1-612-354-13

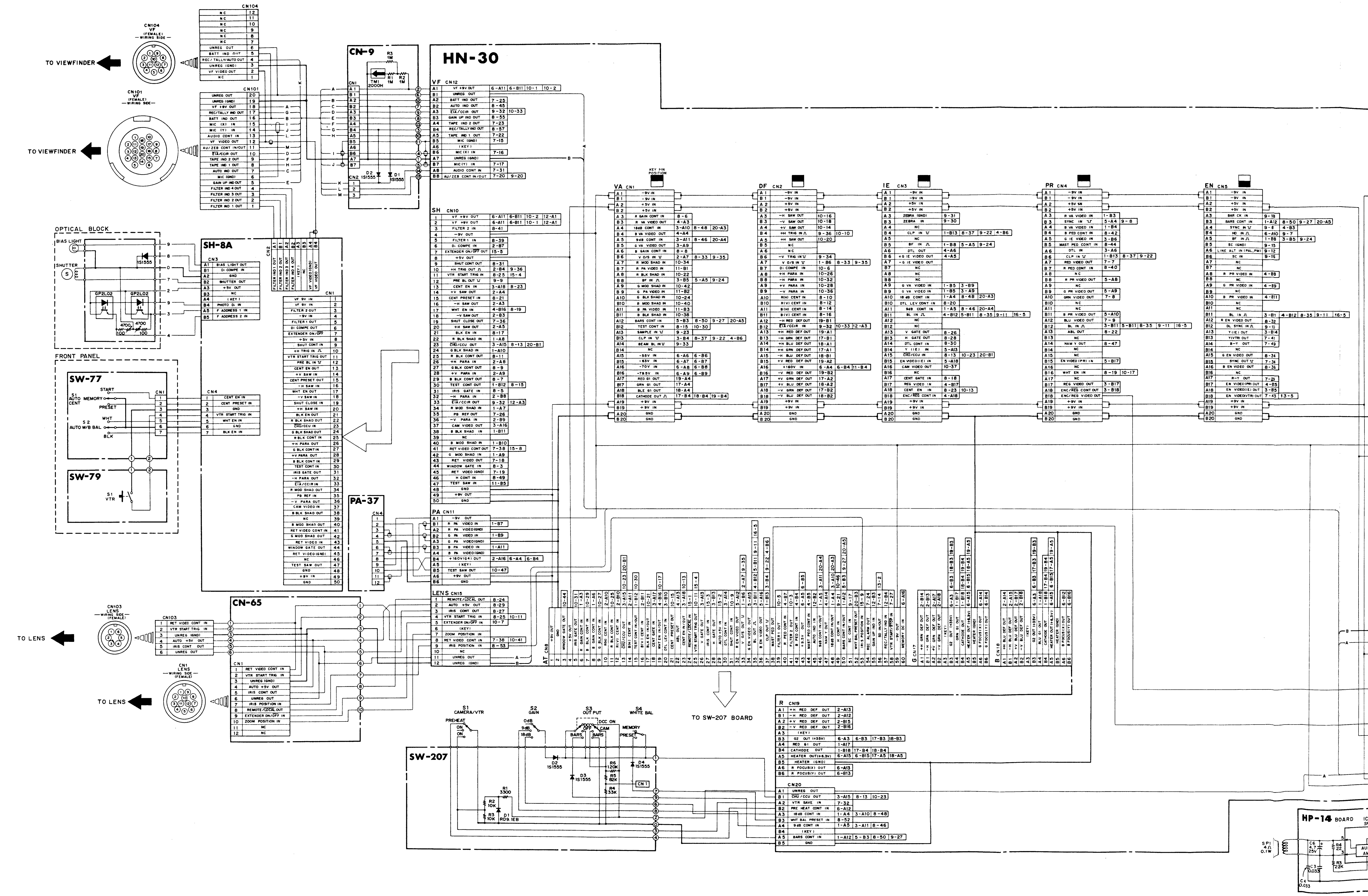
HN-30
–SOLDERING SIDE–

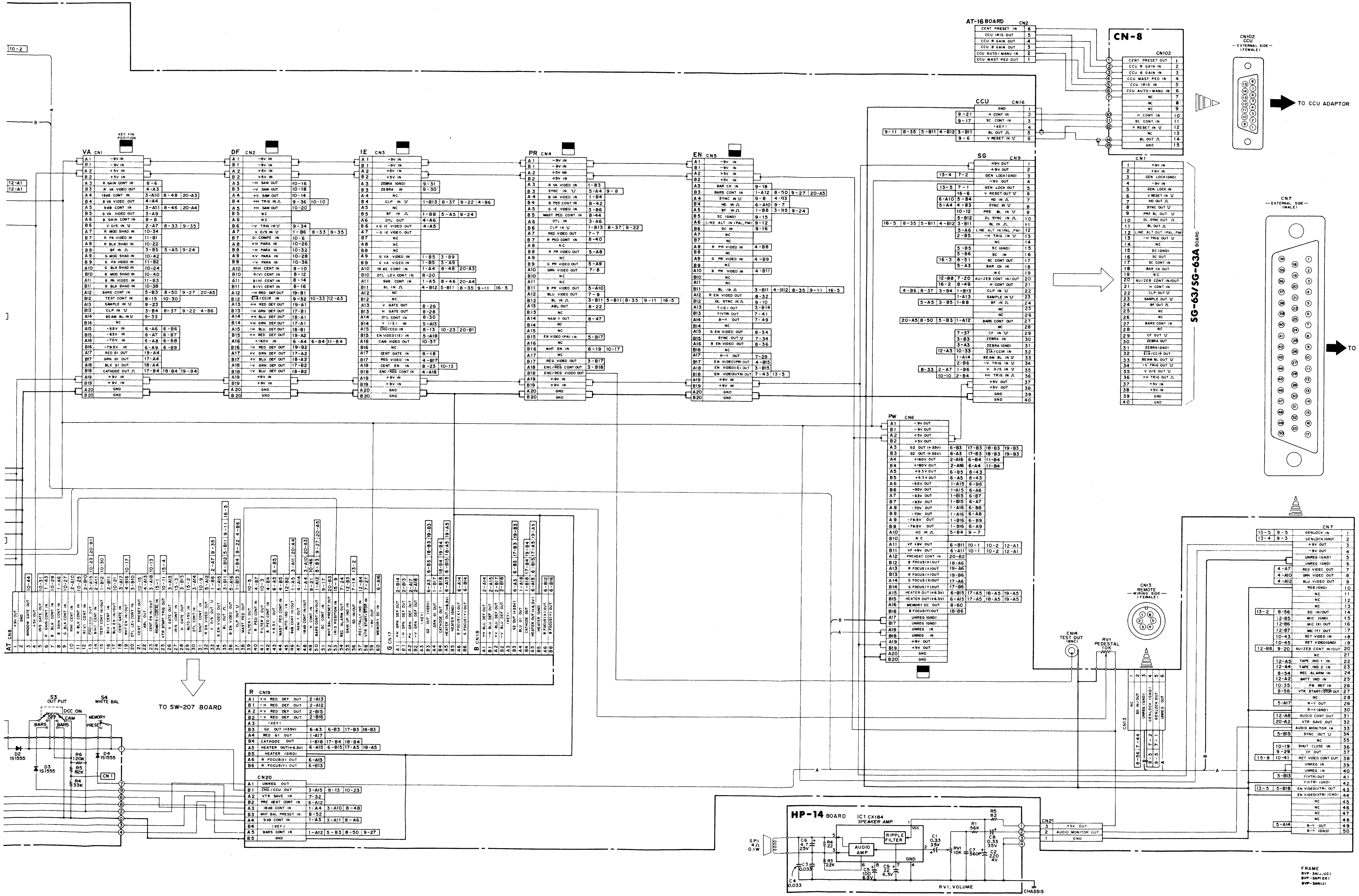


HN-30 BOARD
1-612-354-13
BVP-3A (J,UC)
BVP-3AN (J)
BVP-3AP (EK)
BVP-3AS (AE)

5-68(b)

FRAME

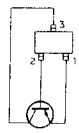

HN-30
SH-8A
CN-9
CN-65
PA-37
SW-77
SW-79
SW-207
HP-14 BOARD
OPTICAL BLOCK
FRONT PANEL
TO VIEWFINDER
TO VIEWFINDER
TO LENS
TO LENS
TO SW-207 BOARD
VA
DF
IE
PR
EN


AT-16 BOARD
CN-8
TO CCU ADAPTOR
TO VTR
SG-63/SG-63A BOARD
TO SW-207 BOARD
HP-14 BOARD
AUDIO AMP
RIPPLE FILTER
RV1, VOLUME
CHASSIS
FRAME
BVP-3A(J,UC)
BVP-3AP(EK)
BVP-3AN(J)

SECTION 6
SEMICONDUCTOR ELECTRODES

2SA1005
2SA1016K
2SA1091
2SA844

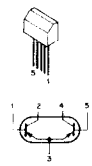
TOP VIEW



2SA1163
2SA1226
2SA812
2SB815

TYPE NO PRINTED

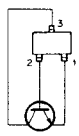
2SA1175



2SA979

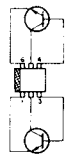
2SB733

TOP VIEW



2SC1009A
2SC1623
2SC2757
2SD1048

TOP VIEW

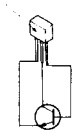


2SC1963

2SC2362K
2SC2551
2SC3112
2SC641K

2SC2669

TYPE NO. PRINTED



2SC2785
2SC2787

BOTTOM VIEW

2SC756

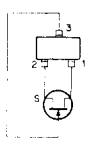
2SD1061

2SD773

2SK125

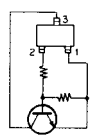
2SK152
2SK43

TOP VIEW

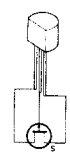


2SK94

TOP VIEW

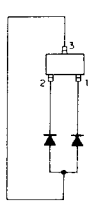


DTC144WK



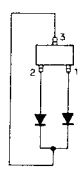
J175
J176
J271
2SK121

TOP VIEW



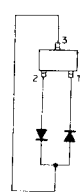
1S2835

TOP VIEW



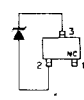
1S2837

TOP VIEW



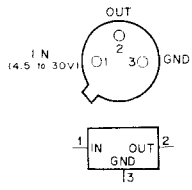
1SS123
1SS226

TOP VIEW

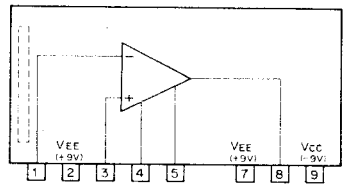


RD ? ?M

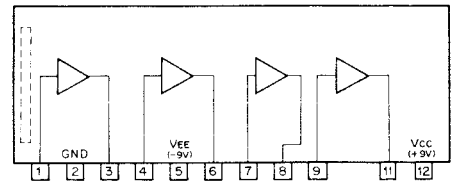
AD580M (ANALOG DEVICES)
REFERENCE VOLTAGE GENERATOR (2.5V)
— BOTTOM VIEW —



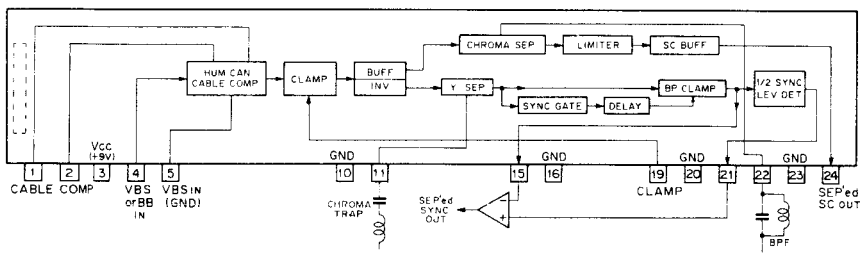
BX1055 (SONY)
VIDEO AMPLIFIER
— REAR VIEW —



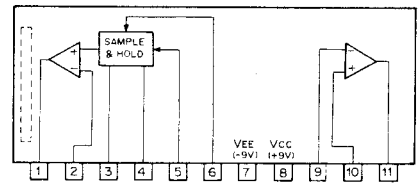
BX1080 (SONY)
AMPLIFIER (PHASE INVERTED)
— REAR VIEW —



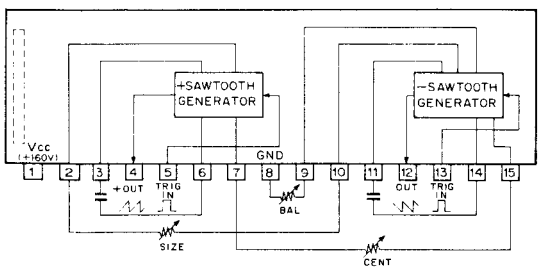
BX1040 (SONY)
SYNC SEPARATOR
— REAR VIEW —



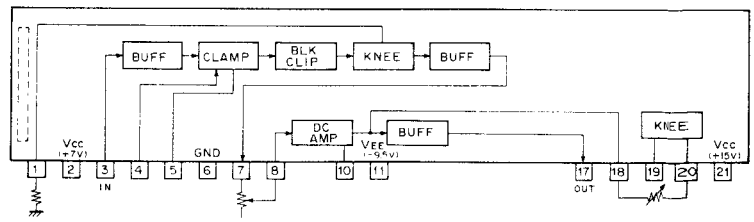
BX1082 (SONY)
OPERATIONAL AMPLIFIER
— REAR VIEW —



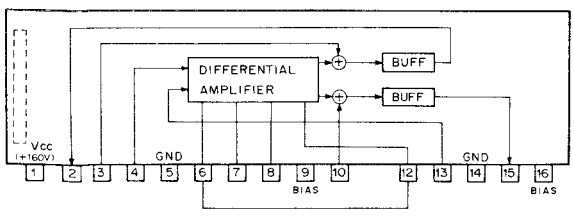
BX1051 (SONY)
POSITIVE/NEGATIVE DEFLECTION PULSE GENERATOR
— REAR VIEW —



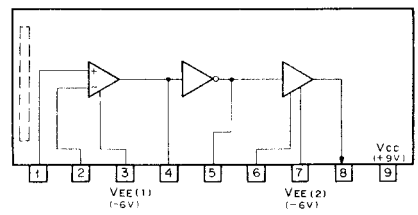
BX1116 (SONY)
AUTOMATIC BEAM OPTIMIZER
— REAR VIEW —



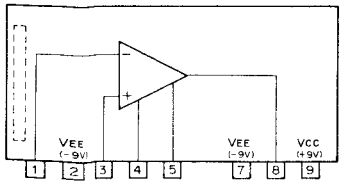
BX1053 (SONY)
DIFFERENTIAL AMPLIFIER AND MIXER
— REAR VIEW —



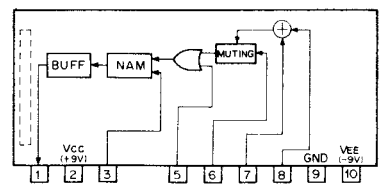
BX315 (SONY)
VIDEO OUTPUT AMPLIFIER (PHASE INVERTED)
— REAR VIEW —



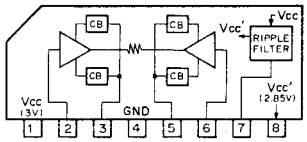
BX1054 (SONY)
VIDEO AMPLIFIER
— REAR VIEW —



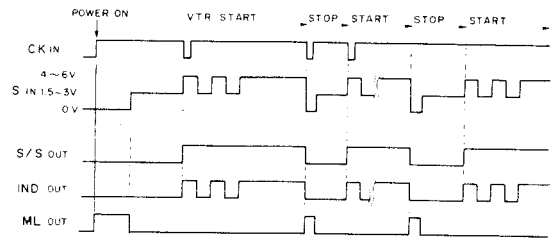
BX3933 (SONY)
— REAR VIEW —

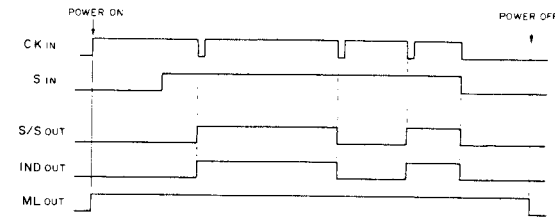


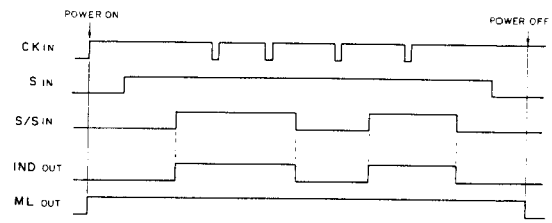
CX184 (SONY)
AUDIO POWER AMP/RIPPLE FILTER
— SIDE VIEW —



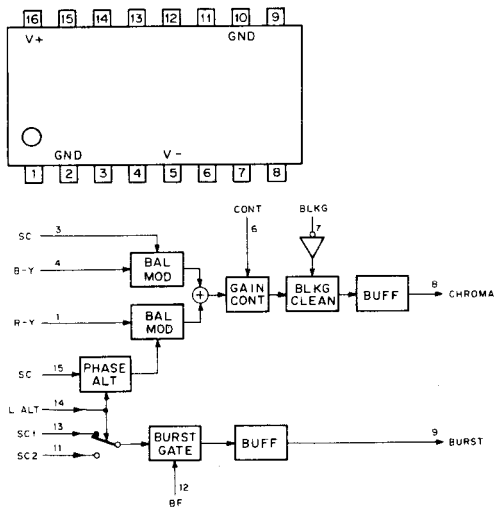
CB ; CURRENT BUFFER



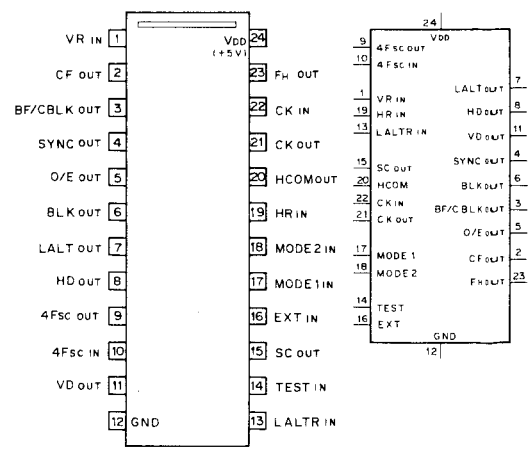




CX22017 (SONY)
VIDEO SIGNAL PROCESSOR
— TOP VIEW —



CX773A (SONY)
C-MOS SYNC GENERATOR (NTSC, PAL-M, PAL, SECAM)
— TOP VIEW —



O/E : ODD/EVEN FIELD
CF : COLOR FRAME PULSE
HCOM : H COMPARATOR

SYSTEM	4Fsc	CLOCK
NTSC	910 FH	910FH
PAL	1135FH+2FV	908FH
PALM	909FH	910FH
SECAM	———	908FH

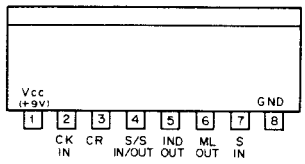
INPUTS		SYSTEM
MODE 1	MODE 2	
0	0	NTSC
0	1	SECAM
1	0	PALM
1	1	PAL

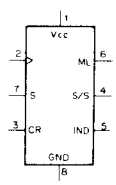
0 ; LOW LEVEL (GND)
1 ; HIGH LEVEL (VDD)

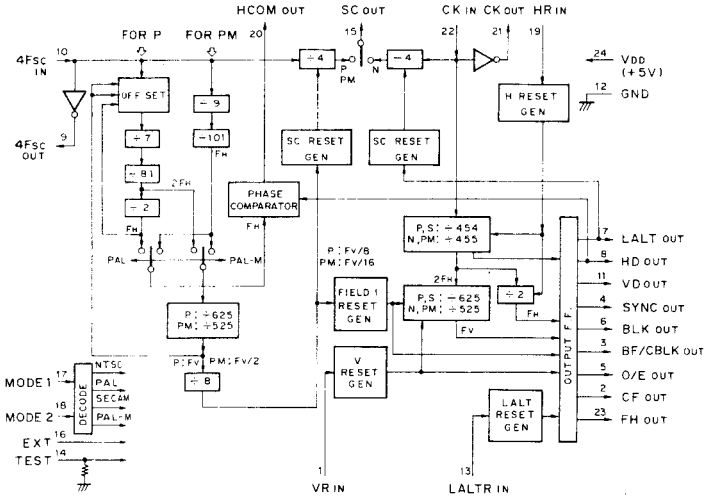
INPUTS		FUNCTION
EXT	TEST	
0	0	INTERNAL
0	1	INVALID
1	0	EXT
1	1	TEST

TEST "0": OPEN (INTERNALLY PULLED DOWN)

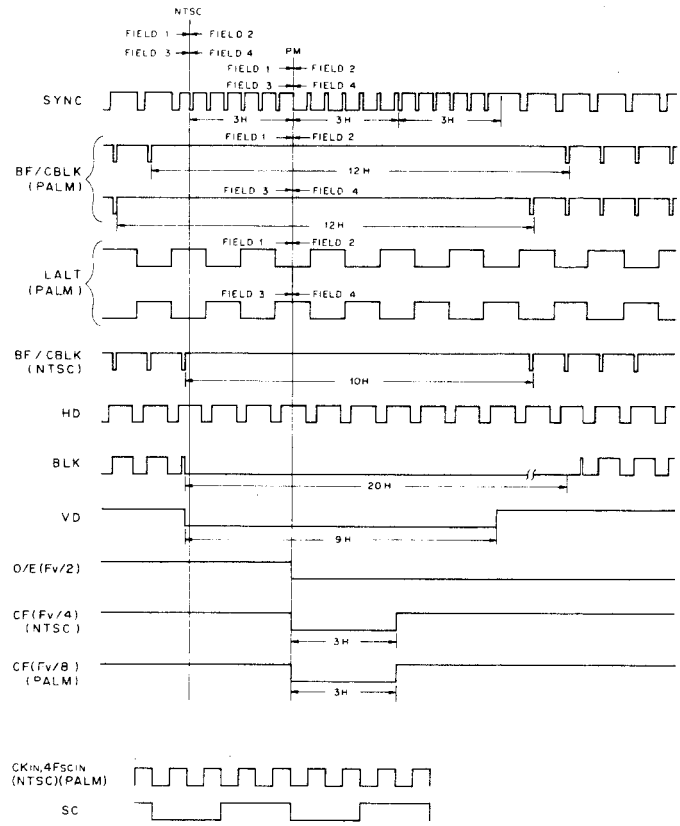
CX518 (SONY)
M54890L (MITSUBISHI)
INTERFACE CIRCUIT BETWEEN VTR AND CAMERA
— SIDE VIEW —



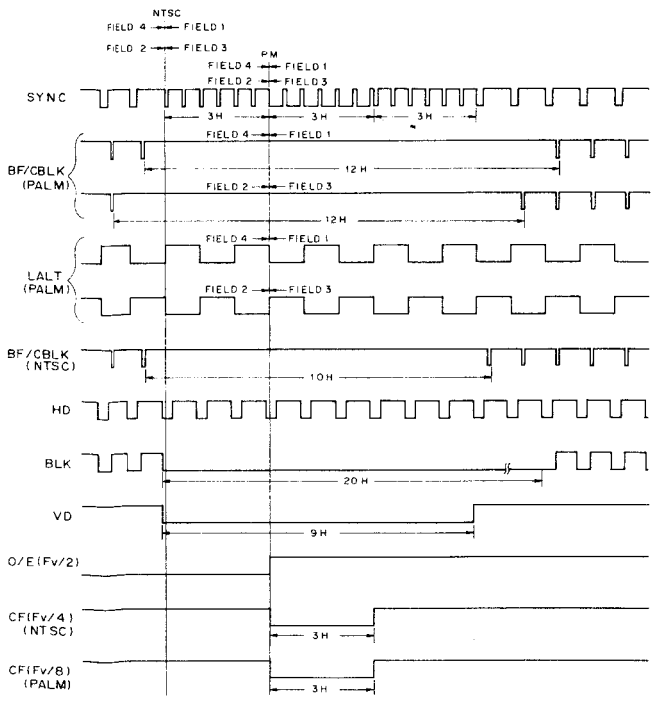




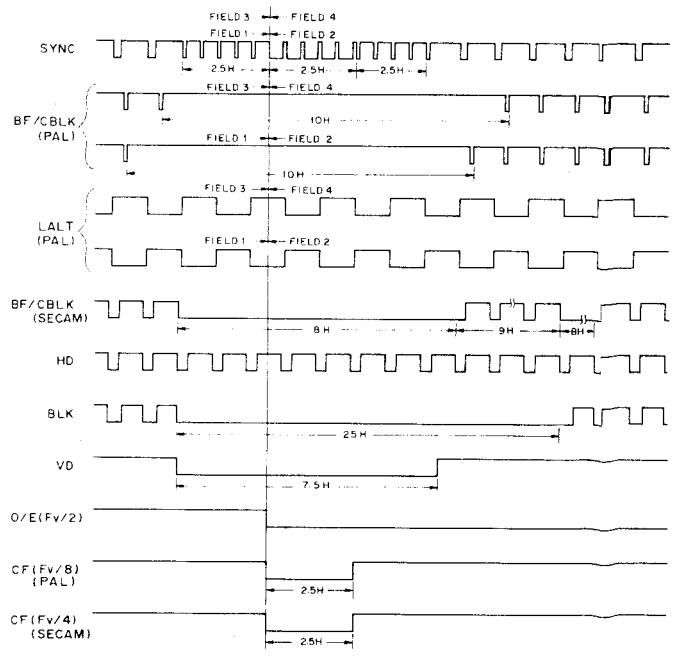
NTSC, PAL-M (FIELD 2, 4)



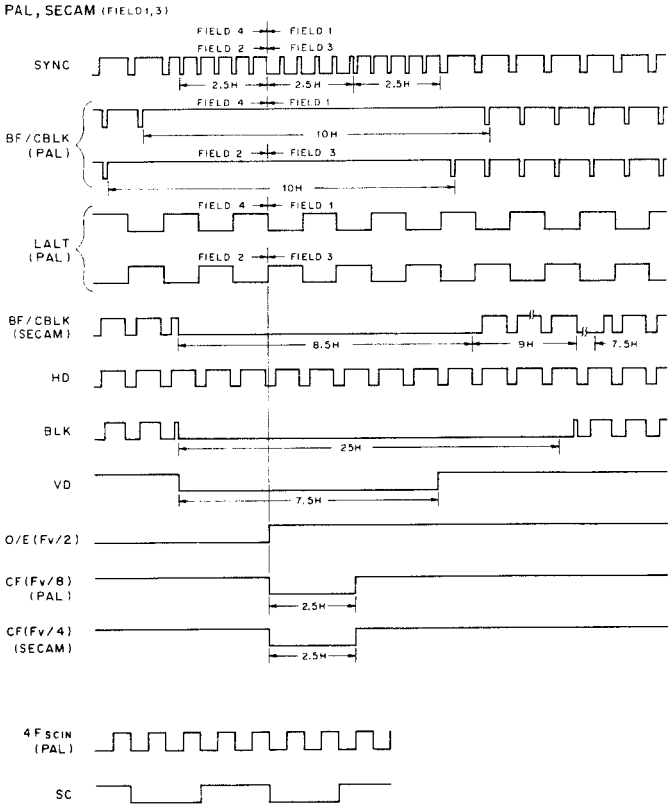
NTSC, PAL-M (FIELD 1, 3)



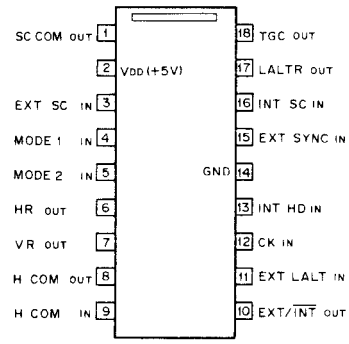
PAL, SECAM (FIELD 4, 2)



PAL, SECAM (FIELD 1, 3)



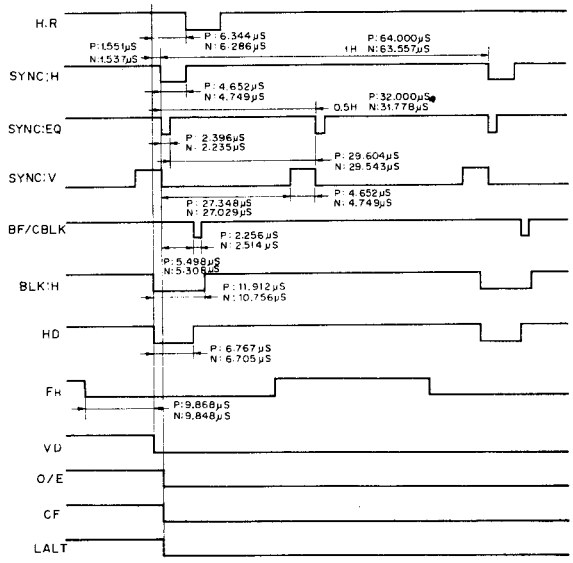
CX7903 (SONY)
C-MOS GENLOCK DRIVER FOR CX773A
— TOP VIEW —

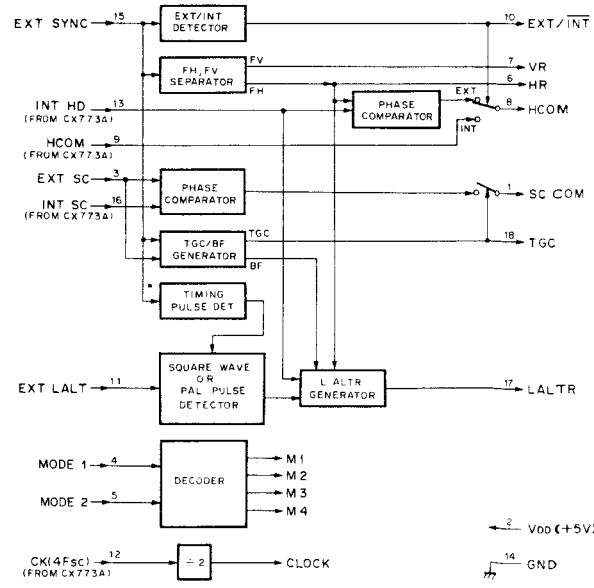


INPUTS		EXT LOCK MODE	
MODE 2	MODE 1		
0	0	M1	PAL: VBS
0	1	M2	PALM: VBS
1	0	M3	PAL: VS/SC/LALT
			SECAM: VS/SC/LALT
1	1	M4	NTSC: VBS
			NTSC: VS/SC
			PALM: VS/SC/LALT

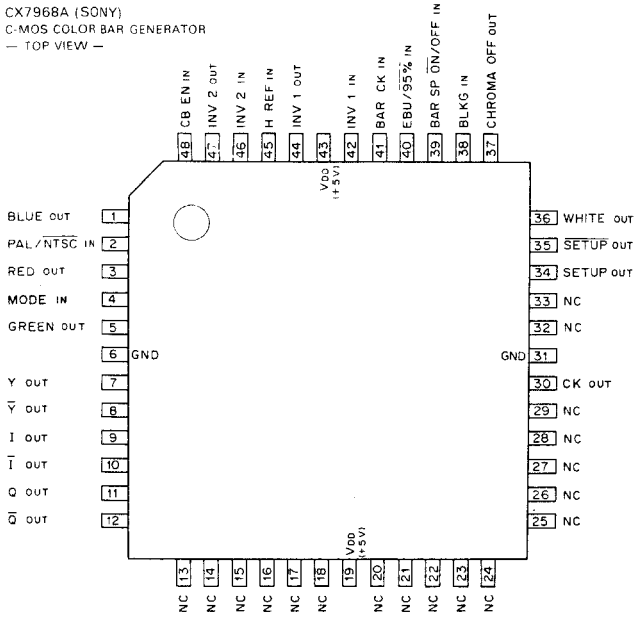
0 ; LOW LEVEL
1 ; HIGH LEVEL

P: PAL, SECAM
N: NTSC, PALM





CX7968A (SONY)
C-MOS COLOR BAR GENERATOR
— TOP VIEW —



INPUT				FUNCTION
PAL/NTSC	MODE	EBU/95%	BAR SP	
0	0	0	0	EIAJ COLOR BAR
0	0	0	1	FULL FIELD COLOR BAR
0	0	1	0	INHIBIT
0	0	1	1	INHIBIT
0	1	0	0	EIAJ COLOR BAR
0	1	0	1	FULL FIELD COLOR BAR
0	1	1	0	SMPTE COLOR BAR
0	1	1	1	COLOR BAR + Y BAR
1	0	0	0	95% COLOR BAR
1	0	0	1	INHIBIT
1	0	1	0	EBU COLOR BAR
1	0	1	1	INHIBIT
1	1	0	0	95% COLOR BAR
1	1	0	1	COLOR BAR + Y BAR
1	1	1	0	EBU COLOR BAR
1	1	1	1	INHIBIT

0 ; LOW LEVEL
1 ; HIGH LEVEL

○ COLOR BAR PATTERN

EIAJ COLOR BAR (NTSC)

GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE
−I	WHITE	+Q	BLACK			

COLOR BAR + Y BAR (PAL) or (NTSC)

WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK
WHITE	GRAY	GRAY	GRAY	GRAY	GRAY	GRAY	BLACK

FULL FIELD COLOR BAR (NTSC)

GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE

95% COLOR BAR (PAL)

WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK

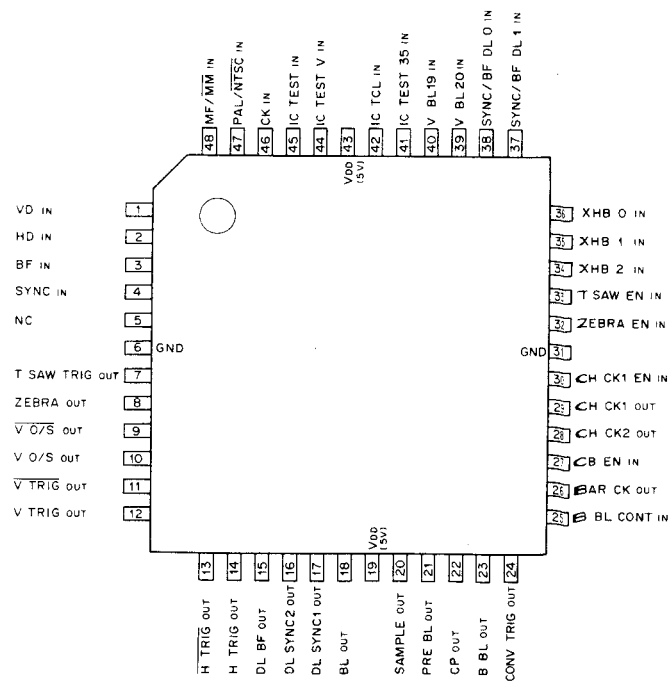
SMPTE COLOR BAR (NTSC)

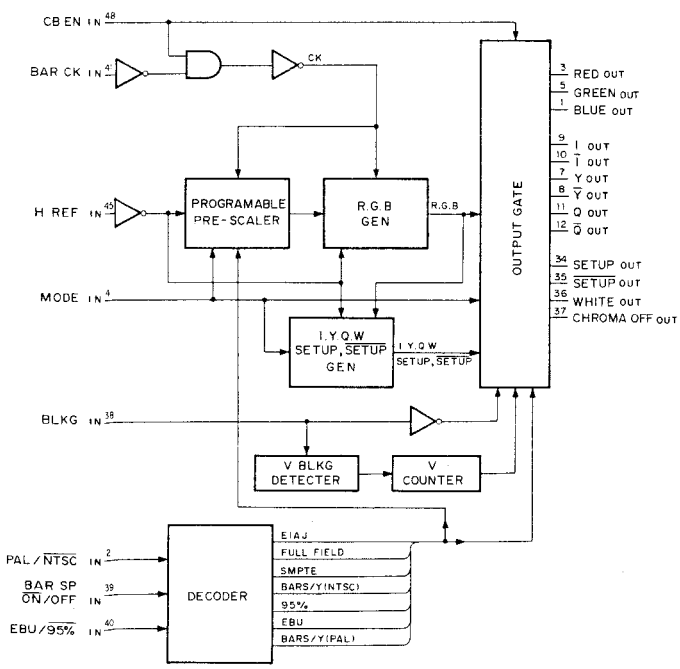
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE
BLUE	BLACK	MAGENTA	BLACK	CYAN	BLACK	GRAY
−I	WHITE	+Q	BLACK	+4 BLACK BLACK +4 BLACK	BLACK	

EBU COLOR BAR (PAL)

WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK

CX7969 (SONY)
C-MOS PULSE GENERATOR
— TOP VIEW —





1. SYSTEM DESIGNATION

INPUT	SYSTEM
PAL/$\overline{\text{NTSC}}$ IN	
1	PAL, SECAM
0	NTSC, PALM

2. TYPE OF TUBE

INPUT	FUNCTION
MF/$\overline{\text{MM}}$ IN	
1	MAG-STA TUBE
0	MAG-MAG TUBE

3. V BLKG WIDTH (NTSC ONLY)

INPUT		V BLKG WIDTH
V BL 19	V BL 20	
1	X	19H
0	0	20H
0	1	21H

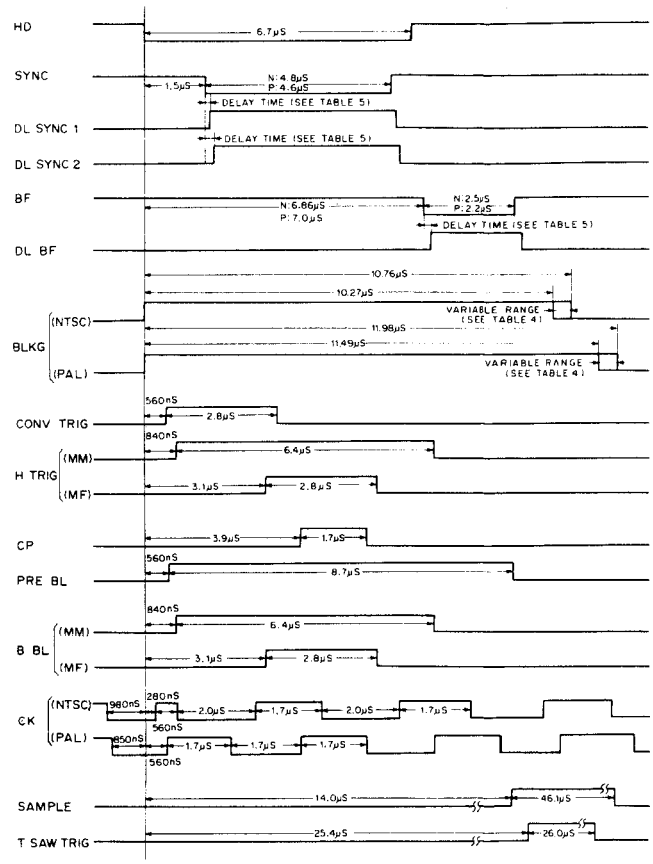
4. H BLKG WIDTH

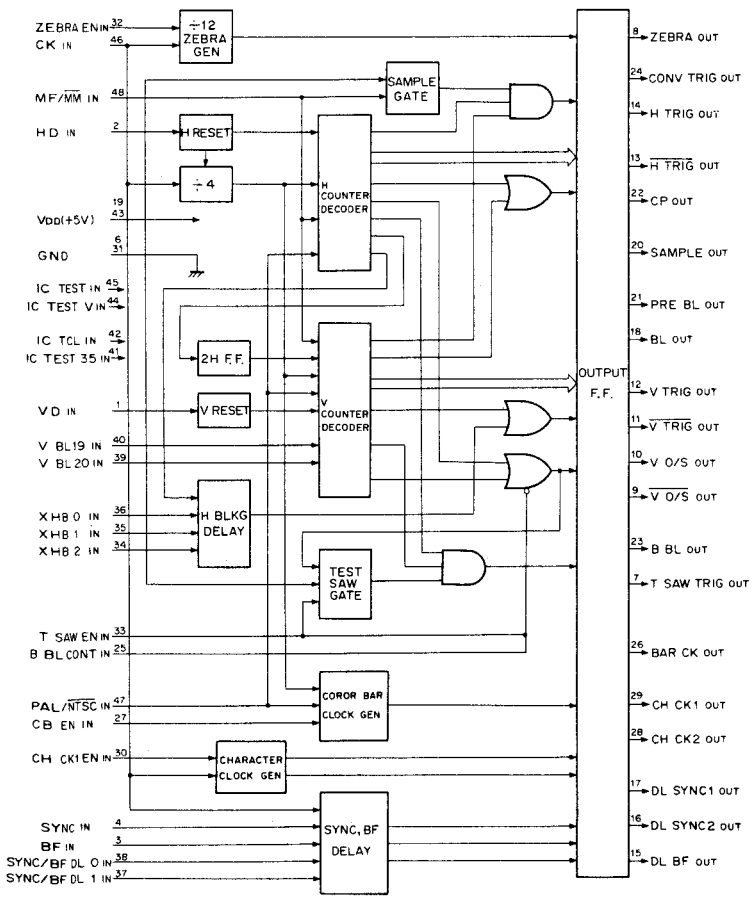
INPUT			BLKG WIDTH (μS)	
XHB2	XHB1	XHB0	NTSC	PAL
1	1	1	10.27	11.49
1	1	0	10.34	11.56
1	0	1	10.41	11.63
1	0	0	10.48	11.70
0	1	1	10.55	11.77
0	1	0	10.62	11.84
0	0	1	10.69	11.91
0	0	0	10.76	11.98

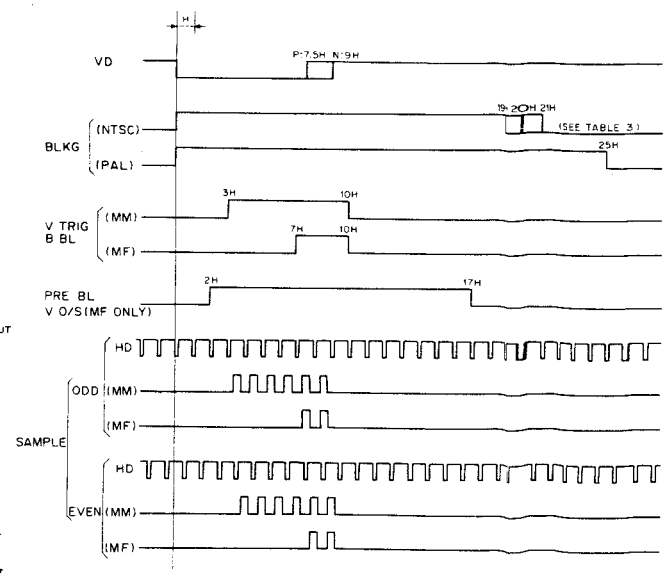
5. DELAY TIME

INPUT		DELAY TIME (nS)		
SYNC/BF DL1	SYNC/BF DL2	DL SYNC 1	DL SYNC 2	DL BF
1	1	140	210	140
1	0	210	280	210
0	1	630	700	630
0	0	700	770	700

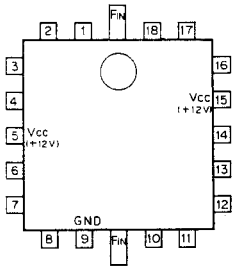
1; HIGH LEVEL
0; LOW LEVEL
X; DON'T CARE

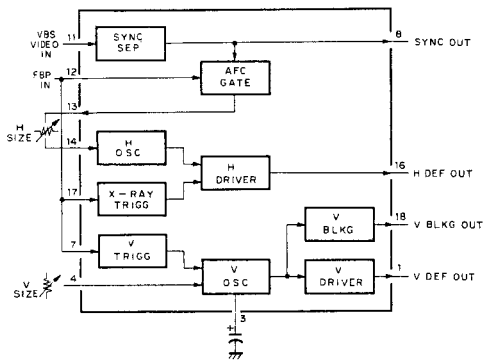


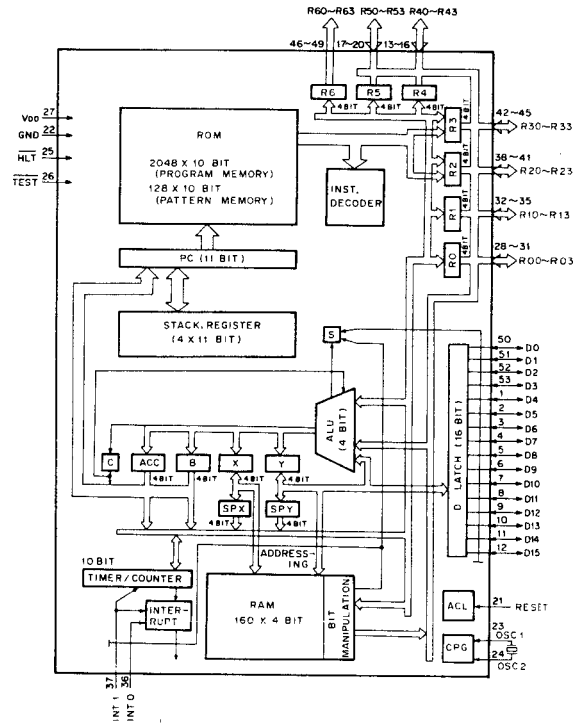




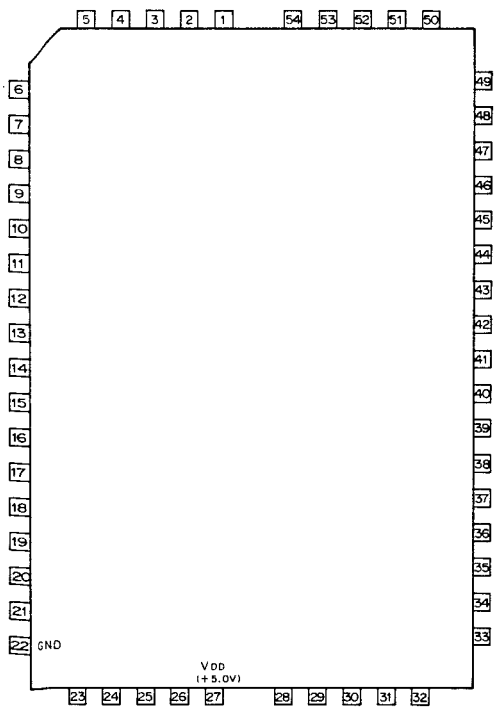
HA11423MP (HITACHI) FLAT PACKAGE
TV H/V SYNC SIGNAL PROCESSOR
— TOP VIEW —



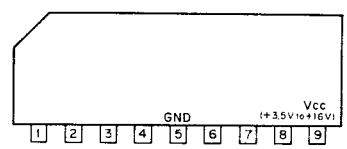


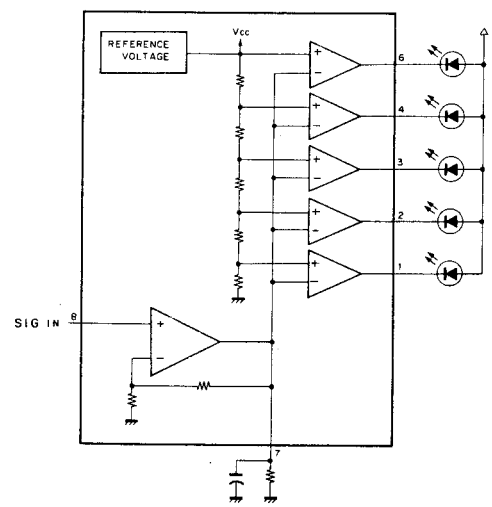


HD44820B27 (HITACHI) FLAT PACKAGE
C-MOS 4-BIT MICROPROCESSOR
— TOP VIEW —

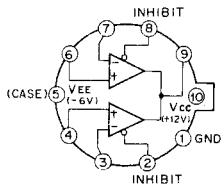


LB1423N (SANYO)
LED DRIVER FOR AC/DC LEVEL METER
— SIDE VIEW —

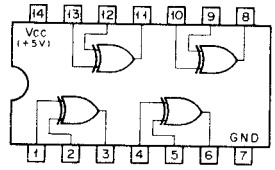




LM711CH (NS)
DUAL DIFFERENTIAL VOLTAGE COMPARATOR
— BOTTOM VIEW —



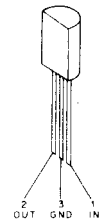
SN74LS86N (TI)
TTL EXCLUSIVE OR GATE
— TOP VIEW —

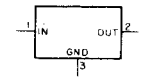


A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

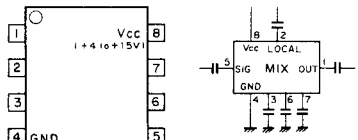
TA78L ? ? ?AP (TOSHIBA)
VOLTAGE REGULATOR



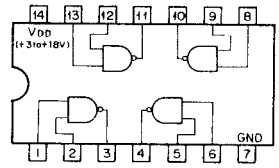


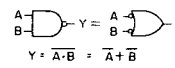
+5V	TA78L005AP
+6V	TA78L006AP
+7V	TA78L007AP
+7.5V	TA78L075AP
+8V	TA78L008AP
+9V	TA78L009AP
+10V	TA78L010AP
+12V	TA78L012AP
+13.2V	TA78L132AP
+15V	TA78L015AP
+18V	TA78L018AP
+20V	TA78L020AP
+24V	TA78L024AP

SN16913P (TI)
BALANCED MIXER
— TOP VIEW —



TC4011BP (HITACHI)
C-MOS 2-INPUT NAND GATE
— TOP VIEW —

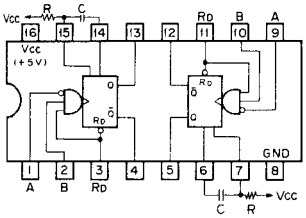




A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

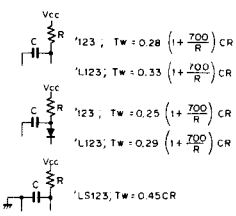
SN74LS123N (TI)
TTL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR WITH DIRECT RESET
— TOP VIEW —



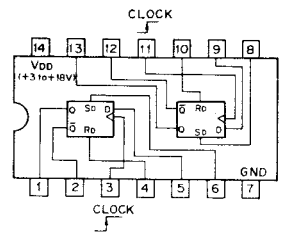
INPUTS			OUTPUTS	
RD	A	B	Q	Q̄
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⌐	⌐
1	↓	1	⌐	⌐
↑	0	1	⌐	⌐

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH



TC4013BF (TOSHIBA) FLAT PACKAGE
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET
— TOP VIEW —



DIRECT R-S FLIP FLOP

Sd	Rd	Q	Q̄
0	0	On	On
0	1	0	1
1	0	1	0
1	1	0	1

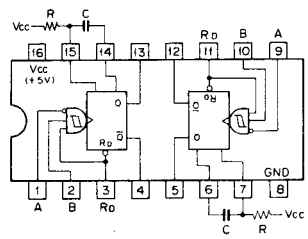
D-TYPE FLIP FLOP

CKn	CKn+1
D	Q
0	0
↑	1

CLOCK CK; ⌐
CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK

0; LOW LEVEL
1; HIGH LEVEL

SN74LS221N (TI)
TTL MONOSTABLE MULTIVIBRATOR WITH SCHMITT TRIGGER INPUT
— TOP VIEW —

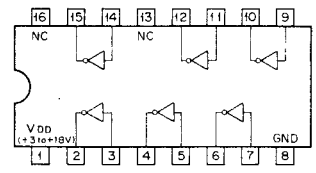


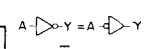
INPUTS			OUTPUTS	
RD	A	B	Q	Q̄
0	X	X	0	1
X	1	X	0	1
X	X	0	0	1
1	0	↑	⌐	⌐
1	↓	1	⌐	⌐
↑	0	1	⌐	⌐

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE

OUTPUT PULSE WIDTH = 0.7CR

TC4049BF (TOSHIBA) FLAT PACKAGE
C-MOS INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —

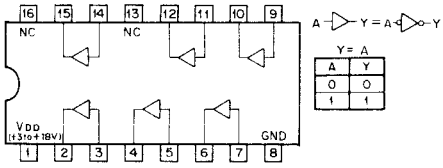




A	Y
0	1
1	0

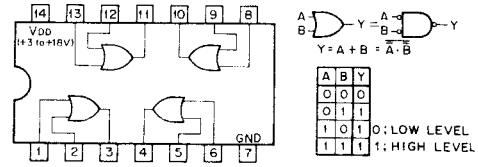
0; LOW LEVEL
1; HIGH LEVEL

TC4050BF (TOSHIBA) FLAT PACKAGE
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER
— TOP VIEW —



A	Y
0	0
1	1

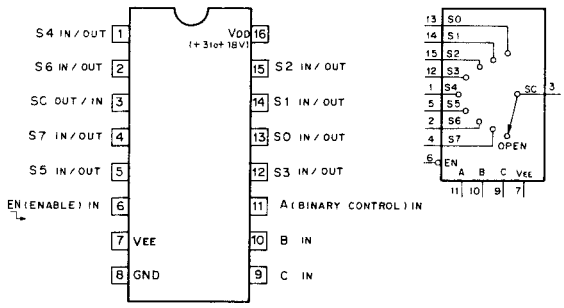
TC4071BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT OR GATE
— TOP VIEW —



A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

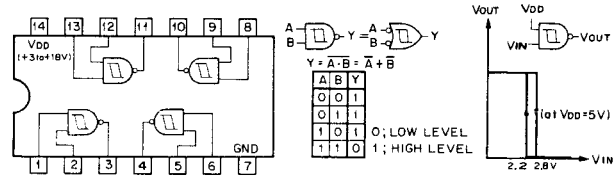
TC4051BF (TOSHIBA) FLAT PACKAGE
C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



EN	C	B	A	"ON" CHANNEL
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

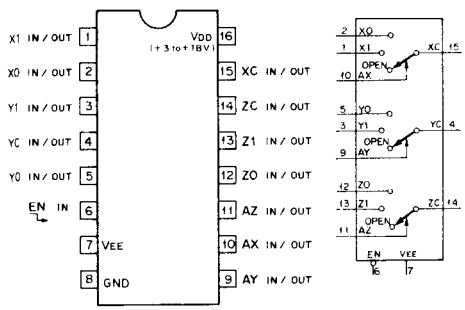
TC4093BF (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND SCHMITT TRIGGER
— TOP VIEW —



A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

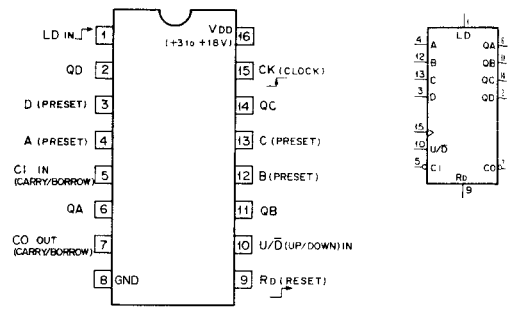
TC4053BF (TOSHIBA) FLAT PACKAGE
TC4053BP (TOSHIBA)
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER
— TOP VIEW —



CONT. INPUTS EN	A ($X_Y Y_Z Z_A$)	ON CHANNEL
0	0	0
0	1	1
1	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE.

TC4516BF (TOSHIBA) FLAT PACKAGE
C-MOS PRESETTABLE BINARY UP/DOWN COUNTER
— TOP VIEW —



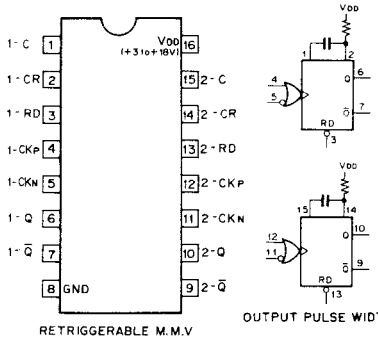
INPUTS CK	RD	LD	CI	U/D	OUTPUTS QD	QC	QB	QA
X	1	X	X	X	0	0	0	0
X	0	1	X	X	SET TO $A_J B_J C_J D$			
↑	0	0	0	1	COUNT UP			
↓	0	0	0	0	COUNT DOWN			
0	0	0	X	X	NO CHANGE			
X	0	0	1	X	NO CHANGE			

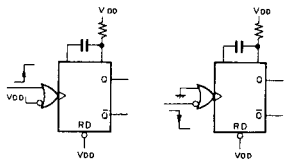
CO = L
CI = L & (DOWN · COUNT "0" OR UP · COUNT "15")

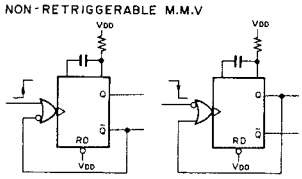
COUNT	OUTPUTS QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

COUNT UP
COUNT DOWN

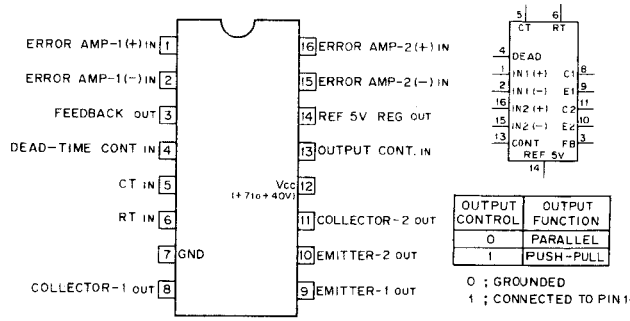
TC4538BF (TOSHIBA) FLAT PACKAGE
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE
MONOSTABLE MULTIVIBRATOR
— TOP VIEW —





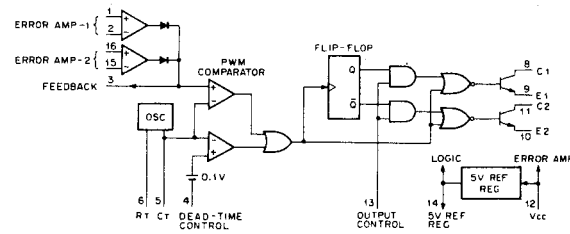


TL494CN (TI)
PWM POWER CONTROL
— TOP VIEW —

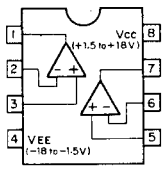


OUTPUT CONTROL	OUTPUT FUNCTION
0	PARALLEL
1	PUSH-PULL

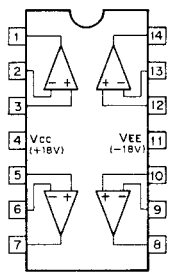
0 ; GROUNDED
1 ; CONNECTED TO PIN 14



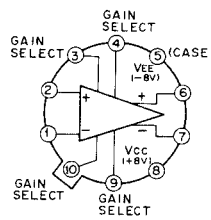
TL062CP (TI)
TL062CPS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(JFET INPUT)
— TOP VIEW —



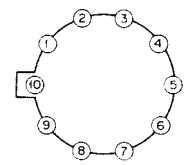
TL064CN (TI)
TL064CNS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —



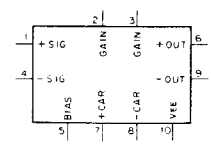
uA733HC (FSC)
DIFFERENTIAL VIDEO AMPLIFIER
— BOTTOM VIEW —



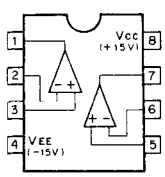
uA796HCA (FSC)
DOUBLE-BALANCED MOD/DEMOD.
— BOTTOM VIEW —



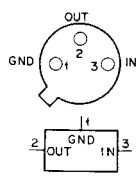
1 +SIGNAL INPUT
2 GAIN ADJUST
3 GAIN ADJUST
4 −SIGNAL INPUT
5 BIAS
6 +OUTPUT
7 +CARRIER INPUT
8 −CARRIER INPUT
9 −OUTPUT
10 VEE



TL082CP (TI)
OPERATIONAL AMPLIFIER
(J FET-INPUT)
— TOP VIEW —

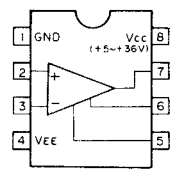


uA79M??AHC (FSC)
NEGATIVE VOLTAGE REGULATOR (0.5A)
— BOTTOM VIEW —

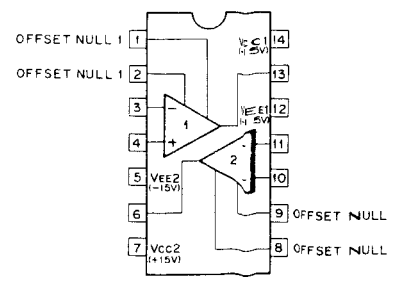


−5V μA79M05AHC
−6V μA79M06AHC
−8V μA79M08AHC
−12V μA79M12AHC
−15V μA79M15AHC
−20V μA79M20AHC
−24V μA79M24AHC

uPC311G2 (NEC) FLAT PACKAGE
VOLTAGE COMPARATOR
— TOP VIEW —



uPC454D (NEC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



SECTION 7
SPARE PARTS

7-1. PARTS INFORMATION

PARTS INFORMATION

1. **Safety Related Component Warning**

   Components identified by shading and ⚠-mark on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear as shown in this manual or in service bulletins and service manual supplements published by Sony.

2. Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to **"accomodating the improved parts and/or engineering changes"** or **"standardization of genuine parts"**.

   - This manual's exploded views and electrical spare parts list are indicating the parts numbers of "the standardized genuine parts at present".
   - Regarding engineering parts changes in our engineering department, refer Sony service bulletins and service manual supplements.

3. **Printed Components in Bold-Face type** on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

4. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

5. **Abbreviation**

REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION
C	CAPACITOR	IC	IC	RV	VARIABLE RESISTOR
CN	CONNECTOR	L	INDUCTOR	S	SWITCH
CV	VARIABLE CAPACITOR	LV	VARIABLE INDUCTOR	T	TRANSFORMER
D	DIODE	Q	TRANSISTOR	TH	THERMISTOR
DL	DELAY LINE	R	RESISTOR	THP	THERMISTOR (POSITIVE)
FL	FILTER	RP	RESISTOR BLOCK	X	OSCILLATOR

All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

6. **Screw**

TOTSU TYPE

	B	BTP
2.6x3	7-621-912-08	
2.6x5	7-621-912-28	
(BZn)	7-621-912-20	
2.6x6	7-621-912-30	
2.6x10	7-621-912-50	
3x4	7-686-622-09	
3x6	7-686-624-09	
3x8		7-687-614-14
3x16	7-686-629-09	
4x6	7-686-634-04	
(BZn)		7-686-634-09
4x16	7-686-639-09	

+ TYPE

	+K	+P
2x2.5		7-627-553-27
2x4	7-627-452-28	7-627-553-47
(BZn)		7-627-553-48
2.6x4		7-627-556-38
2.6x12	7-621-592-30	
3x6	7-682-247-09	

	BOLT, HEXAGON
2.6x10	7-683-414-05
3x8	7-683-404-04

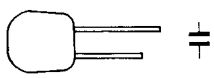
C, MICA

7-2. ELECTRICAL PARTS

Parts that are not listed in the "reference numbers order list" are shown in following table.
Reference numbers are omitted.

CAPACITOR

SILVERED MICA CAPACITOR

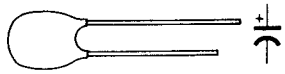


1 pF through 8.2 pF ±0.5 pF 500V
10 pF through 680 pF ±5% 500V
750 pF ±10% 500V

Parts No. 1-107-□□□-00

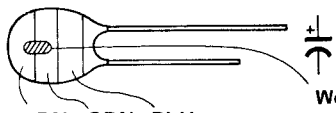
Value	Parts No. −□□□−	Value	Parts No. −□□□−	Value	Parts No. −□□□−	Value	Parts No. −□□□−
1 pF	019	12 pF	204	51 pF	164	220 pF	177
1.2	039	13	205	56	165	240	178
1.5	040	15	206	62	166	270	179
1.8	041	16	207	68	036	300	180
2.2	042	18	208	75	167	330	181
2.7	043	20	209	82	037	360	182
3.3	044	22	210	91	168	390	183
3.9	045	24	211	100	169	430	184
4.7	046	27	157	110	170	470	185
5.1	026	30	158	120	171	510	186
5.6	047	33	159	130	172	560	187
6.8	048	36	160	150	173	620	188
8.2	049	39	161	160	174	680	212
10	202	43	162	180	175	750	258
11	203	47	163	200	176		

TANTALUM CAPACITOR



0.01μF through 100μF ± 10%
3.15V through 35V

NOTE: The value of the parts that are marked by * in the below table are indicated by color code. (to the value with ± 20%)



Working Voltage Color Code

Ex. BRN GRN BLU
1 5 6

15×10^6 pF = 15μF

BLK	RED	YEL	GRN	BLU	GRY	WHT
10V	35	6.3	16	20	25	3.15

Parts No. 1-131-□□□-00

Value		Parts No. −□□□−
0.01μ	35V	*396
0.015	35	*397
0.022	35	*398
0.033	35	*399
0.047	35	*400
0.068	35	*401
0.1	35	*402
0.15	35	*403
0.22	35	*404
0.33	25	*409
	35	*405
0.47	20	*412
	35	*406
0.68	16	*415
	25	*410
	35	*407
1.0	10	*418
	20	*413

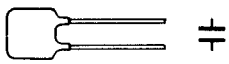
Value		Parts No. −□□□−
1.0μ	35V	*408
1.5	6.3	*421
	16	*416
	25	*411
	35	348
2.2	3.15	*424
	10	*419
	20	*414
	25	355
	35	349
3.3	6.3	*422
	16	*417
	20	362
	25	356
	35	350
4.7	3.15	*425
	10	*420
	16	369

Value		Parts No. −□□□−
4.7μ	20V	363
	25	357
	35	351
6.8	6.3	*423
	10	376
	16	370
	20	364
	25	358
	35	352
10	3.15	*426
	6.3	383
	10	377
	16	371
	20	365
	25	359
	35	353
15	3.15	390
	6.3	384

Value		Parts No. −□□□−
15μ	10V	378
	16	372
	20	366
	25	360
22	3.15	391
	6.3	385
	10	379
	16	373
	20	367
33	3.15	392
	6.3	386
	10	380
	16	374
47	3.15	393
	6.3	387
	10	381
68	3.15	394
	6.3	388
100	3.15	395

C, CERAMIC CHIP

CERAMIC CAPACITOR



47PF through 0.15μF 50V

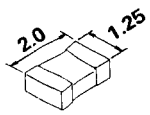
Parts No. 1-161-□□□-00

Value	Parts No. -□□□-
47P 5%	855
51P 5%	476
56P 5%	477
62P 5%	478
68P 5%	457
75P 5%	479
82P 5%	458
91P 5%	480
100P 5%	459
120P 5%	460
150P 5%	461

Value	Parts No. -□□□-
180P 5%	462
220P 5%	463
270P 5%	464
330P 5%	465
390P 5%	466
470P 5%	467
560P 5%	468
680P 5%	469
820P 5%	470
0.001μ 10%	471

Value	Parts No. -□□□-
0.0015μ 10%	852
0.0022μ 10%	853
0.0033μ 10%	854
0.0047μ 10%	472
0.01μ 10%	473
0.022μ 10%	474
0.033μ 10%	475
0.047μ 10%	481
0.068μ 10%	482
0.1μ 10%	483
0.15μ 10%	484

CHIP CERAMIC CAPACITOR



220pF through 0.018μF(B) ± 10% 50WV

0.022μF through 0.068μF(F) $^{+80}_{-20}$ % 50WV

0.1μF(F) $^{+80}_{-20}$ % 25WV

Parts No. 1-163-□□□-00

Value	Parts No. – □□□ –
100pF	—
120	—
150	—
180	—
220	001
270	002
330	003
390	004
470	005
560	006
680	007
820	008

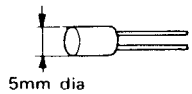
Value	Parts No. – □□□ –
0.001μF	009
0.0012	010
0.0015	011
0.0018	012
0.0022	013
0.0027	014
0.0033	015
0.0039	016
0.0047	017
0.0056	018
0.0068	019
0.0082	020

Value	Parts No. – □□□ –
0.01μF	021
0.012	022
0.015	023
0.018	024
0.022	033
0.027	—
0.033	034
0.039	—
0.047	035
0.056	—
0.068	036
0.082	—
0.1	038

INDUCTOR

MICRO INDUCTOR

1 μH through 470 μH
±5%

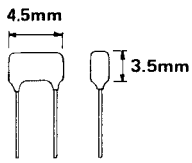


Parts No. 1-407-□□□-XX

Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-
1 μH	178	4.7 μH	186	22 μH	161	100 μH	169
1.2	179	5.6	187	27	162	120	170
1.5	180	6.8	188	33	163	150	171
1.8	181	8.2	189	39	164	180	172
2.2	182	10	157	47	165	220	173
2.7	183	12	158	56	166	270	174
3.3	184	15	159	68	167	330	175
3.9	185	18	160	82	168	390	176
						470	177

RESISTOR

METAL FILM RESISTOR



± 1%, 1/8W
10Ω through 33 kΩ

Parts No. 1-214-□□□-00

Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-
10Ω	509	100Ω	533	1.0kΩ	557	10kΩ	581
11	510	110	534	1.1	558	11	582
12	511	120	535	1.2	559	12	583
13	512	130	536	1.3	560	13	584
15	513	150	537	1.5	561	15	585
16	514	160	538	1.6	562	16	586
18	515	180	539	1.8	563	18	587
20	516	200	540	2.0	564	20	588
22	517	220	541	2.2	565	22	589
24	518	240	542	2.4	566	24	590
27	519	270	543	2.7	567	27	591
30	520	300	544	3.0	568	30	592
33	521	330	545	3.3	569	33	593
36	522	360	546	3.6	570		
39	523	390	547	3.9	571		
43	524	430	548	4.3	572		
47	525	470	549	4.7	573		
51	526	510	550	5.1	574		
56	527	560	551	5.6	575		
62	528	620	552	6.2	576		
68	529	680	553	6.8	577		
75	530	750	554	7.5	578		
82	531	820	555	8.2	579		
91	532	910	556	9.1	580		

R, CARBON

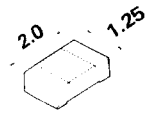
CARBON RESISTOR (1/6W)

±5%, 1/6W, non-special type
2.2Ω through 1MΩ

Parts No. 1-247-□□□-00

Value	Parts No. −□□□−	Value	Parts No. −□□□−	Value	Parts No. −□□□−	Value	Parts No. −□□□−
1Ω	–	36Ω	796	1.2kΩ	833	43kΩ	870
1.1	–	39	797	1.3	834	47	871
1.2	–	43	798	1.5	835	51	872
1.3	–	47	799	1.6	836	56	873
1.5	–	51	800	1.8	837	62	874
1.6	–	56	801	2	838	68	875
1.8	–	62	802	2.2	839	75	876
2	–	68	803	2.4	840	82	877
2.2	767	75	804	2.7	841	91	878
2.4	768	82	805	3	842	100kΩ	879
2.7	769	91	806	3.3	843	110	880
3	770	100Ω	807	3.6	844	120	881
3.3	771	110	808	3.9	845	130	882
3.6	772	120	809	4.3	846	150	883
3.9	773	130	810	4.7	847	160	884
4.3	774	150	811	5.1	848	180	885
4.7	775	160	812	5.6	849	200	886
5.1	776	180	813	6.2	850	220	887
5.6	777	200	814	6.8	851	240	888
6.2	778	220	815	7.5	852	270	889
6.8	779	240	816	8.2	853	300	890
7.5	780	270	817	9.1	854	330	891
8.2	781	300	818	10kΩ	855	360	892
9.1	782	330	819	11	856	390	893
10Ω	783	360	820	12	857	430	894
11	784	390	821	13	858	470	895
12	785	430	822	15	859	510	896
13	786	470	823	16	860	560	897
15	787	510	824	18	861	620	898
16	788	560	825	20	862	680	899
18	789	620	826	22	863	750	900
20	790	680	827	24	864	820	901
22	791	750	828	27	865	910	902
24	792	820	829	30	866	1MΩ	903
27	793	910	830	33	867		
30	794	1kΩ	831	36	868		
33	795	1.1	832	39	869		

CHIP RESISTOR



±5% 1/10W
0Ω through 3.3MΩ

Parts No. 1-216-□□□-00

Value	Parts No. – □□□ –
0Ω	295
1Ω	—
1.1	—
1.2	—
1.3	—
1.5	—
1.6	—
1.8	—
2	—
2.2	298
2.4	301
2.7	302
3	303
3.3	304
3.6	305
3.9	306
4.3	307
4.7	308
5.1	297
5.6	309
6.2	310
6.8	311
7.5	312
8.2	313
9.1	314
10Ω	001
11	002
12	003
13	004
15	005
16	006
18	007
20	008
22	009
24	010
27	011

Value	Parts No. – □□□ –
30	012
33Ω	013
36	014
39	015
43	016
47	017
51	018
56	019
62	020
68	021
75	022
82	023
91	024
100Ω	025
110	026
120	027
130	028
150	029
160	030
180	031
200	032
220	033
240	034
270	035
300	036
330	037
360	038
390	039
430	040
470	041
510	042
560	043
620	044
680	045
750	046
820	047

Value	Parts No. – □□□ –
910	048
1kΩ	049
1.1	050
1.2	051
1.3	052
1.5	053
1.6	054
1.8	055
2	056
2.2	057
2.4	058
2.7	059
3	060
3.3	061
3.6	062
3.9	063
4.3	064
4.7	065
5.1	066
5.6	067
6.2	068
6.8	069
7.5	070
8.2	071
9.1	072
10kΩ	073
11	074
12	075
13	076
15	077
16	078
18	079
20	080
22	081
24	082
27	083

Value	Parts No. – □□□ –
30	084
33kΩ	085
36	086
39	087
43	088
47	089
51	090
56	091
62	092
68	093
75	094
82	095
91	096
100kΩ	097
110	098
120	099
130	100
150	101
160	102
180	103
200	104
220	105
240kΩ	106
270	107
300	108
330	109
360	110
390	111
430	112
470	113
510	114
560	115
620	116
680	117
750	118
820	119

Value	Parts No. – □□□ –
910	120
1MΩ	121
1.1	122
1.2	123
1.3	124
1.5	125
1.6	126
1.8	127
2	128
2.2	129
2.4	130
2.7	131
3	132
3.3	133

AT-16/16N

Ref.No.	Parts No.	Description
AT-16/16N BOARD		
	A-7513-046-A	MOUNTED CIRCUIT BOARD "AT-16"
	A-7513-071-A	MOUNTED CIRCUIT BOARD "AT-16N"
C4	**1-163-259-00**	**CERAMIC CHIP 220P 5% 50V**
C5	**1-163-259-00**	**CERAMIC CHIP 220P 5% 50V**
C7	**1-131-341-00**	**TANTALUM 0.1 10% 35V**
C12	**1-124-169-00**	**ELECT 100 20% 10V**
C13	**1-131-375-00**	**TANTALUM 0.22 10% 10V**
C14	**1-163-109-00**	**CERAMIC CHIP 47P 5% 50V**
C16	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C20	**1-131-341-00**	**TANTALUM 0.1 10% 35V**
C24	**1-163-113-00**	**CERAMIC CHIP 68P 5% 50V**
C27	**1-163-037-00**	**CERAMIC CHIP 0.022 10% 25V**
C29	**1-130-495-00**	**MYLAR 0.1 5% 50V**
C32	**1-131-343-00**	**TANTALUM 0.22 10% 35V**
C34	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C35	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C36	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C37	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C38	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C42	**1-163-141-00**	**CERAMIC CHIP 0.001 5% 50V**
C49	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C50	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C51	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C52	**1-163-251-00**	**CERAMIC CHIP 100P 5% 50V**
C72	**1-131-347-00**	**TANTALUM 1 10% 35V**
C77	**1-124-271-00**	**ELECT 1 20% 50V**
C78	**1-124-270-11**	**ELECT 0.47 20% 50V**
CN1	1-564-084-00	RECEPTACLE, 60P MALE
	1-556-762-00	60P PLUG WITH HARNESS
CN2	1-564-381-11	RECEPTACLE, 6P MALE
	1-562-388-11	SOCKET CONNECTOR 6P
D1	**8-719-815-55**	**1S1555**
D2	**8-719-815-55**	**1S1555**
D3	**8-719-100-03**	**1S2835**
D4	**8-719-815-55**	**1S1555**
D5	**8-719-815-55**	**1S1555**
D6	**8-719-815-55**	**1S1555**
D7	**8-719-101-34**	**RD3.0EL1**
D8	**8-719-101-60**	**RD6.2EL1**
D9	**8-719-815-55**	**1S1555**
D10	**8-719-815-55**	**1S1555**
D11	**8-719-100-03**	**1S2835**
D12	**8-719-815-55**	**1S1555**
D13	**8-719-815-55**	**1S1555**
D14	**8-719-100-03**	**1S2835**
D15	**8-719-100-05**	**1S2837**
D16	**8-719-815-55**	**1S1555**
D17	**8-719-100-05**	**1S2837**
D18	**8-719-100-05**	**1S2837**
D19	**8-719-108-13**	**1S955**
D20	**8-719-108-13**	**1S955**
D22	**8-719-815-55**	**1S1555**
D23	**8-719-101-98**	**1SS97**
D24	**8-719-101-63**	**RD6.8EL1**
D25	**8-719-105-91**	**RD5.6MB2**
D26	**8-719-100-03**	**1S2835**
D28	**8-719-100-05**	**1S2837**
D29	**8-719-100-03**	**1S2835**
D30	**8-719-100-03**	**1S2835**
D31	**8-719-100-05**	**1S2837**
D32	**8-719-100-05**	**1S2837**
DL1	**1-415-345-00**	**110nS**
IC1	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC2	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC3	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC4	**8-759-906-53**	**TL062CPS: TI**
IC5	**8-759-101-12**	**μPC311G2: NEC**
IC6	**8-759-200-85**	**TC4093BF: TOSHIBA**
IC7	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC8	**8-759-200-79**	**TC4049BF: TOSHIBA**
IC9	**8-759-200-79**	**TC4049BF: TOSHIBA**
IC10	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC11	**8-759-909-96**	**LM711CH: NS**
IC12	**8-759-969-13**	**SN16913P: TI**
IC13	**8-759-200-89**	**TC4516BF: TOSHIBA**
IC14	**8-759-205-78**	**TC504013BF: TOSHIBA**
IC15	**8-759-300-62**	**HD44820B27: HITACHI**
IC16	**8-741-117-90**	**BX1179: SONY**
IC17	**8-741-117-90**	**BX1179: SONY**
IC18	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC19	**8-759-200-83**	**TC4071BF: TOSHIBA**
IC20	**8-759-906-54**	**TL064CNS: TI**
IC21	**8-759-200-79**	**TC4049BF: TOSHIBA**
IC23	**8-759-605-18**	**CX518: SONY**
IC24	**8-759-906-53**	**TL062CPS: TI**
IC25	**8-759-906-54**	**TL064CNS: TI**
IC26	**8-759-906-53**	**TL062CPS: TI**

Ref.No.	Parts No.	Description
L1	1-408-417-21	MICRO 47
L2	1-408-417-21	MICRO 47
L3	1-408-417-21	MICRO 47
Q1	8-729-101-25	2SC1009A
Q2	8-729-101-25	2SC1009A
Q3	8-729-101-25	2SC1009A
Q4	8-729-101-25	2SC1009A
Q5	8-729-101-25	2SC1009A
Q6	8-729-109-44	2SK94
Q7	8-729-109-44	2SK94
Q8	8-729-101-25	2SC1009A
Q9	8-729-101-25	2SC1009A
Q10	8-729-101-25	2SC1009A
Q11	8-729-101-25	2SC1009A
Q12	8-729-122-63	2SA1226
Q13	8-729-122-63	2SA1226
Q14	8-729-101-25	2SC1009A
Q15	8-729-800-44	2SK152-4
Q16	8-729-122-63	2SA1226
Q17	8-729-101-25	2SC1009A
Q18	8-729-101-25	2SC1009A
Q19	8-729-101-25	2SC1009A
Q20	8-729-122-63	2SA1226
Q21	8-729-109-44	2SK94
Q22	8-729-122-63	2SA1226
Q23	8-729-101-25	2SC1009A
Q24	8-729-122-63	2SA1226
Q25	8-729-101-25	2SC1009A
Q26	8-729-101-25	2SC1009A
Q27	8-729-122-63	2SA1226
Q28	8-729-101-25	2SC1009A
Q29	8-729-101-25	2SC1009A
Q30	8-729-101-25	2SC1009A
Q31	8-729-101-25	2SC1009A
Q32	8-729-122-63	2SA1226
Q33	8-729-122-63	2SA1226
Q34	8-729-122-63	2SA1226
Q35	8-729-101-25	2SC1009A
Q36	8-729-101-25	2SC1009A
Q37	8-729-122-63	2SA1226
Q38	8-729-101-25	2SC1009A
Q39	8-729-101-25	2SC1009A
Q40	8-729-101-25	2SC1009A

Ref.No.	Parts No.	Description
Q41	8-729-800-68	2SB815
Q42	8-729-101-25	2SC1009A
Q43	8-729-101-25	2SC1009A
Q44	8-729-101-25	2SC1009A
Q45	8-729-101-25	2SC1009A
Q46	8-729-122-63	2SA1226
Q47	8-729-101-25	2SC1009A
Q48	8-729-122-63	2SA1226
Q49	8-729-109-44	2SK94
Q50	8-729-800-36	2SD1048
Q51	8-729-101-25	2SC1009A
Q52	8-729-101-25	2SC1009A
Q54	8-729-101-25	2SC1009A
Q55	8-729-101-25	2SC1009A
Q56	8-729-101-25	2SC1009A
Q57	8-729-109-44	2SK94
Q58	8-729-109-44	2SK94
Q59	8-729-109-44	2SK94
Q60	8-729-109-44	2SK94
Q61	8-729-109-44	2SK94
Q63	8-729-109-44	2SK94
Q64	8-729-101-25	2SC1009A
Q65	8-729-101-25	2SC1009A
R31	1-215-458-00	METAL 36K 1% 1/6W
R33	1-215-481-00	METAL 330K 1% 1/6W
R111	1-215-465-00	METAL 68K 1% 1/6W
R154	1-247-696-11	CARBON 47 5% 1/4W
R233	1-247-831-00	CARBON 1K 5% 1/6W
RP1	1-231-387-00	RESISTOR, BLOCK
RV1	1-228-460-00	METAL 20K
RV2	1-228-457-00	METAL 2K
S4	1-554-076-00	SLIDE
S5	1-554-076-00	SLIDE
X1	1-527-532-00	400KHz

CN-8, CN-9, CN-65, DF-17

Ref.No.	Parts No.	Description
CN-8 BOARD		
CN102	**1-934-795-11**	**CCU-15PIN CONNECTOR WITH HARNESS**
CN-9 BOARD		
	A-7520-172-A	MOUNTED CIRCUIT BOARD "CN-9"
CN1	1-564-154-00	RECEPTACLE, 14P
CN2	1-564-379-11	RECEPTACLE, 3P
D1	**8-719-815-55**	**1S1555**
D2	**8-719-815-55**	**1S1555**
TM1	**1-548-119-21**	**TIMER**
R1	**1-215-493-00**	**METAL 1M 1% 1/6W**
R2	**1-215-493-00**	**METAL 1M 1% 1/6W**
R3	**1-215-493-00**	**METAL 1M 1% 1/6W**
CN-65 BOARD		
	1-608-897-13	PRINTED CIRCUIT BOARD "CN-65" (UC . . . S/N UP TO 10600 / J . . . . S/N UP TO 15300 / P . . . . S/N UP TO 21000)
	1-608-897-14	PRINTED CIRCUIT BOARD "CN-65" (UC . . . S/N 10601 AND HIGHER / J . . . . S/N 15301 AND HIGHER / P . . . . S/N 21001 AND HIGHER)
CN1	**1-562-221-00**	**RECEPTACLE, 12P FEMALE "LENS"**

Ref.No.	Parts No.	Description
DF-17 BOARD		
	A-7511-888-A	MOUNTED CIRCUIT BOARD "DF-17"
C1	**1-124-342-00**	**ELECT 3.3 20% 200V**
C2	**1-108-415-00**	**MYLAR 0.0033 10% 200V**
C3	**1-123-380-00**	**ELECT 1 20% 100V**
C4	**1-123-252-00**	**ELECT 1 160V**
C5	**1-130-815-00**	**POLYESTER 0.015 5% 630V**
C6	**1-130-815-00**	**POLYESTER 0.015 5% 630V**
C19	**1-124-287-00**	**ELECT(NONPOLAR) 10 20% 10V**
C20	**1-124-287-00**	**ELECT(NONPOLAR) 10 20% 10V**
C25	**1-124-342-00**	**ELECT 3.3 20% 200V**
C33	**1-123-354-00**	**ELECT 3.3 20% 50V**
C36	**1-123-354-00**	**ELECT 3.3 20% 50V**
C40	**1-108-425-00**	**MYLAR 0.022 10% 200V**
C41	**1-108-425-00**	**MYLAR 0.022 10% 200V**
C47	**1-124-287-00**	**ELECT(NONPOLAR) 10 20% 10V**
C55	**1-124-287-00**	**ELECT(NONPOLAR) 10 20% 10V**
C60	**1-161-894-00**	**CERAMIC 0.1 50V**
C61	**1-161-894-00**	**CERAMIC 0.1 50V**
C62	**1-161-894-00**	**CERAMIC 0.1 50V**
C63	**1-161-894-00**	**CERAMIC 0.1 50V**
C66	**1-161-013-00**	**CERAMIC 0.01 25V**
CN1	1-560-935-00	RECEPTACLE, 40P MALE
	1-560-707-00	POLARISING KEY
D1	**8-719-815-55**	**1S1555**
D2	**8-719-815-55**	**1S1555**
D3	**8-719-815-55**	**1S1555**
D4	**8-719-815-55**	**1S1555**
D5	**8-719-815-55**	**1S1555**
D6	**8-719-815-55**	**1S1555**
IC1	**8-741-105-10**	**BX1051: SONY**
IC2	**8-741-105-30**	**BX1053: SONY**
IC3	**8-741-105-30**	**BX1053: SONY**
IC4	**8-741-105-30**	**BX1053: SONY**
IC5	**8-759-990-62**	**TL062CP: TI**
IC6	**8-741-108-00**	**BX1080: SONY**
IC7	**8-759-900-64**	**TL064CN: TI**
IC8	**8-741-105-10**	**BX1051: SONY**
IC9	**8-759-990-82**	**TL082CP: TI**
IC10	**8-741-105-30**	**BX1053: SONY**

Ref.No.	Parts No.	Description
IC11	8-741-105-30	BX1053: SONY
IC12	8-741-105-30	BX1053: SONY
IC13	8-759-907-92	μA796HCA: FSC
Q2	8-729-177-54	2SA1175
Q3	8-729-200-17	2SA1091
Q4	8-729-255-12	2SC2551
Q5	8-729-255-12	2SC2551
Q6	8-729-200-17	2SA1091
Q7	8-765-450-20	2SK125
Q13	8-729-178-54	2SC2785
Q17	8-765-450-20	2SK125
Q18	8-729-178-54	2SC2785
Q19	8-729-178-54	2SC2785
R15	1-215-479-00	METAL 270K 1% 1/6W
R16	1-215-486-00	METAL 510K 1% 1/6W
R17	1-214-968-00	METAL 1.5M 1% 1/4W
R18	1-215-479-00	METAL 270K 1% 1/6W
R19	1-215-493-00	METAL 1M 1% 1/6W
R20	1-215-493-00	METAL 1M 1% 1/6W
R29	1-214-968-00	METAL 1.5M 1% 1/4W
R30	1-215-469-00	METAL 100K 1% 1/6W
R32	1-215-464-00	METAL 62K 1% 1/6W
R33	1-215-464-00	METAL 62K 1% 1/6W
R34	1-215-468-00	METAL 91K 1% 1/6W
R35	1-215-468-00	METAL 91K 1% 1/6W
R36	1-215-476-00	METAL 200K 1% 1/6W
R37	1-215-476-00	METAL 200K 1% 1/6W
R38	1-215-476-00	METAL 200K 1% 1/6W
R39	1-215-476-00	METAL 200K 1% 1/6W
R40	1-215-472-00	METAL 130K 1% 1/6W
R41	1-215-472-00	METAL 130K 1% 1/6W
R57	1-215-459-00	METAL 39K 1% 1/6W
R58	1-215-466-00	METAL 75K 1% 1/6W
R60	1-215-469-00	METAL 100K 1% 1/6W
R64	1-215-471-00	METAL 120K 1% 1/6W
R65	1-215-471-00	METAL 120K 1% 1/6W
R66	1-215-460-00	METAL 43K 1% 1/6W
R67	1-215-460-00	METAL 43K 1% 1/6W
R84	1-215-479-00	METAL 270K 1% 1/6W
R85	1-215-487-00	METAL 560K 1% 1/6W
R86	1-215-479-00	METAL 270K 1% 1/6W
R87	1-215-489-00	METAL 680K 1% 1/6W
R88	1-215-476-00	METAL 200K 1% 1/6W

Ref.No.	Parts No.	Description
R89	1-215-476-00	METAL 200K 1% 1/6W
R94	1-215-469-00	METAL 100K 1% 1/6W
R103	1-215-476-00	METAL 200K 1% 1/6W
R104	1-215-476-00	METAL 200K 1% 1/6W
R107	1-215-481-00	METAL 330K 1% 1/6W
R108	1-215-469-00	METAL 100K 1% 1/6W
R110	1-215-469-00	METAL 100K 1% 1/6W
R116	1-215-485-00	METAL 470K 1% 1/6W
R121	1-215-461-00	METAL 47K 1% 1/6W
R122	1-215-461-00	METAL 47K 1% 1/6W
R123	1-215-461-00	METAL 47K 1% 1/6W
R124	1-215-461-00	METAL 47K 1% 1/6W
R129	1-215-476-00	METAL 200K 1% 1/6W
R132	1-215-469-00	METAL 100K 1% 1/6W
R137	1-214-971-00	METAL 2M 1% 1/4W
R139	1-215-463-00	METAL 56K 1% 1/6W
RV1	1-228-459-00	METAL 10K
RV2	1-228-459-00	METAL 10K
RV3	1-226-101-00	METAL 1M
RV4	1-228-465-00	METAL 1M
RV5	1-228-477-00	METAL 100K
RV6	1-228-477-00	METAL 100K
RV7	1-228-477-00	METAL 100K
RV8	1-228-477-00	METAL 100K
RV9	1-228-461-00	METAL 50K
RV10	1-228-908-00	METAL 50K
RV11	1-228-908-00	METAL 50K
RV12	1-228-908-00	METAL 50K
RV13	1-228-908-00	METAL 50K
RV14	1-228-932-00	METAL 10K
RV15	1-228-932-00	METAL 10K
RV16	1-228-932-00	METAL 10K
RV17	1-228-932-00	METAL 10K
RV18	1-228-458-00	METAL 5K
RV19	1-228-477-00	METAL 100K
RV20	1-228-477-00	METAL 100K
RV21	1-228-477-00	METAL 100K
RV22	1-228-477-00	METAL 100K
RV24	1-228-459-00	METAL 10K
RV25	1-226-101-00	METAL 1M
RV26	1-228-464-00	METAL 500K
RV27	1-228-908-00	METAL 50K
RV28	1-228-908-00	METAL 50K
RV29	1-228-908-00	METAL 50K
RV30	1-228-908-00	METAL 50K
RV31	1-228-462-00	METAL 100K

DF-17, EN-33/33A

Ref.No.	Parts No.	Description
RV32	1-228-462-00	METAL 100K
RV33	1-228-462-00	METAL 100K
RV34	1-228-462-00	METAL 100K
RV35	1-228-462-00	METAL 100K
S1	1-554-075-00	SLIDE
S2	1-554-076-00	SLIDE
T1	1-433-260-00	COUPLING
THP1	1-806-627-21	1K

EN-33/33A BOARD

	A-7513-068-A	MOUNTED CIRCUIT BOARD "EN-33" (NTSC)
	A-7513-070-A	MOUNTED CIRCUIT BOARD "EN-33A" (PAL)
C46	1-124-286-00	ELECT 33 20% 16V
C62	1-124-286-00	ELECT 33 20% 16V
C75	1-163-243-00	CERAMIC CHIP 47PF 5% 50V
C109	1-163-243-00	CERAMIC CHIP 47PF 5% 50V
C128	1-163-105-00	CERAMIC CHIP 33PF 5% 50V (NTSC)
C129	1-163-088-00	CERAMIC CHIP 5P 50V
CN1	1-560-935-00	RECEPTACLE, 40P MALE
	1-560-707-00	POLARISING KEY
CN3	1-564-591-11	RECEPTACLE, 3P MALE
	1-561-724-00	PLUG HOUSING 3P
CN4	1-564-591-11	RECEPTACLE, 3P MALE
	1-561-724-00	PLUG HOUSING 3P
D5	8-719-815-55	1S1555
DL1	1-415-291-00	790nS (NTSC)
	1-415-304-00	338nS (PAL)
DL2	1-415-290-00	410nS (NTSC)

Ref.No.	Parts No.	Description
IC4	8-759-240-53	TC4053BP: TOSHIBA
IC5	8-749-910-55	BX1055: SONY
IC6	8-749-931-50	BX315: SONY
IC7	8-759-911-77	CX7968A: SONY
IC8	8-759-906-59	CX22017: SONY
IC10	8-759-906-13	μA79M05AHC: FSC
L1	1-408-417-00	MICRO 47
L3	1-408-417-00	MICRO 47
L4	1-408-417-00	MICRO 47
L5	1-408-417-00	MICRO 47
L6	1-408-849-00	MICRO 330 (NTSC)
L7	1-408-148-00	MICRO 10 (NTSC)
L8	1-408-150-00	MICRO 22 (NTSC)
	1-408-170-00	MICRO 18 (PAL)
L9	1-408-851-00	MICRO 560 (NTSC)
L11	1-408-358-00	MICRO 100 (NTSC)
	1-408-368-00	MICRO 220 (PAL)
L12	1-408-417-00	MICRO 47
L13	1-408-145-00	COIL 19 (NTSC)
L17	1-408-417-00	MICRO 47
L18	1-408-406-00	MICRO 5.6
LV1	1-408-844-00	22 (NTSC)
	1-408-845-00	100 (PAL)
LV2	1-408-844-00	22
Q1	8-729-364-12	2SC641K
Q2	8-729-101-25	2SC1009A
Q3	8-729-101-25	2SC1009A
Q4	8-729-101-25	2SC1009A
Q5	8-729-101-25	2SC1009A
Q6	8-729-122-63	2SA1226
Q7	8-729-122-63	2SA1226
Q8	8-729-122-63	2SA1226
Q9	8-729-122-63	2SA1226
Q10	8-729-101-25	2SC1009A
Q11	8-729-101-25	2SC1009A
Q13	8-729-122-63	2SA1226
Q14	8-729-101-25	2SC1009A
Q15	8-729-100-66	2SC1623
Q16	8-729-101-25	2SC1009A

Ref.No.	Parts No.	Description
Q17	8-729-101-25	2SC1009A
Q18	8-729-101-25	2SC1009A
Q19	8-729-101-25	2SC1009A
Q20	8-729-101-25	2SC1009A
Q21	8-729-101-25	2SC1009A
Q22	8-729-101-25	2SC1009A
Q23	8-729-101-25	2SC1009A
Q24	8-729-101-25	2SC1009A (NTSC)
Q25	8-729-101-25	2SC1009A (NTSC)
Q26	8-729-101-25	2SC1009A (NTSC)
Q27	8-729-101-25	2SC1009A
Q28	8-729-122-63	2SA1226
Q29	8-729-101-25	2SC1009A
Q30	8-729-101-25	2SC1009A
Q31	8-729-122-63	2SA1226
Q32	8-729-101-25	2SC1009A
Q33	8-729-101-25	2SC1009A
Q34	8-729-101-25	2SC1009A
Q35	8-729-101-25	2SC1009A
Q36	8-729-101-25	2SC1009A
Q37	8-729-101-25	2SC1009A
Q38	8-729-122-63	2SA1226
Q39	8-729-101-25	2SC1009A
Q40	8-729-101-25	2SC1009A
Q41	8-729-101-25	2SC1009A
Q42	8-729-101-25	2SC1009A
Q43	8-729-101-25	2SC1009A
Q44	8-729-101-25	2SC1009A
Q45	8-729-101-25	2SC1009A
Q46	8-729-101-25	2SC1009A
Q47	8-729-101-25	2SC1009A
Q48	8-729-101-25	2SC1009A
Q49	8-729-101-25	2SC1009A
Q50	8-729-101-25	2SC1009A
Q51	8-729-101-25	2SC1009A
Q52	8-729-101-25	2SC1009A
Q53	8-729-122-63	2SA1226
Q54	8-729-122-63	2SA1226
Q55	8-729-122-63	2SA1226
Q56	8-729-101-25	2SC1009A
Q65	8-729-364-12	2SC641K
R14	1-214-503-00	METAL 3.32K 0.5% 1/4W(NTSC)
	1-214-483-00	METAL 4.99K 1% 1/2W (PAL)
R15	1-214-499-00	METAL 1.62K 0.5% 1/4W(NTSC)
	1-214-482-00	METAL 2.55K 1% 1/2W (PAL)
R16	1-214-504-00	METAL 9.09K 0.5% 1/4W(NTSC)
	1-214-485-00	METAL 13.7K 1% 1/2W (PAL)
R61	1-214-503-00	METAL 3.32K 0.5% 1/4W(NTSC)
	1-214-483-00	METAL 4.99K 1% 1/2W (PAL)
R62	1-214-499-00	METAL 1.62K 0.5% 1/2W(NTSC)
	1-214-482-00	METAL 2.55K 1% 1/2W (PAL)

Ref.No.	Parts No.	Description
R63	1-214-504-00	METAL 9.09K 0.5% 1/2W(NTSC)
	1-214-485-00	METAL 13.7K 1% 1/2W (PAL)
R87	1-214-502-00	METAL 2.67K 0.5% 1/4W(NTSC)
	1-214-482-00	METAL 2.55K 1% 1/2W (PAL)
R88	1-214-501-00	METAL 2.32K 0.5% 1/4W(NTSC)
	1-214-485-00	METAL 13.7K 1% 1/2W (PAL)
R96	1-215-829-11	METAL 91K 1% 1/8W (PAL)
R102	1-215-830-11	METAL 100K 1% 1/8W (PAL)
R127	1-214-500-00	METAL 2.26K 0.5% 1/4W(NTSC)
R128	1-214-503-00	METAL 3.32K 0.5% 1/4W(NTSC)
R131	1-214-483-00	METAL 4.99K 1% 1/2W (PAL)
R132	1-214-482-00	METAL 2.55K 1% 1/2W (PAL)
R164	1-214-482-00	METAL 2.55K 1% 1/2W
R165	1-214-485-00	METAL 13.7K 1% 1/2W
R179	1-214-482-00	METAL 2.55K 1% 1/2W
R180	1-214-483-00	METAL 4.99K 1% 1/2W
R212	1-215-824-11	METAL 56K 1% 1/6W
R214	1-215-824-11	METAL 56K 1% 1/6W
R218	1-215-829-11	METAL 91K 1% 1/8W (PAL)
R219	1-215-829-11	METAL 91K 1% 1/8W (PAL)
R260	1-215-473-00	METAL 150K 1% 1/6W (NTSC)
R261	1-215-474-00	METAL 160K 1% 1/6W (NTSC)
R262	1-215-474-00	METAL 160K 1% 1/6W (NTSC)
R263	1-215-473-00	METAL 150K 1% 1/6W (NTSC)
RV1	1-228-459-00	METAL 10K
RV2	1-228-456-00	METAL 1K
RV4	1-228-459-00	METAL 10K (NTSC)
RV5	1-228-457-00	METAL 2K (NTSC)
RV6	1-228-458-00	METAL 5K
RV7	1-228-459-00	METAL 10K
RV8	1-228-456-00	METAL 1K
RV9	1-228-456-00	METAL 1K
RV10	1-228-457-00	METAL 2K
RV11	1-228-457-00	METAL 2K
RV12	1-228-457-00	METAL 2K
RV13	1-226-369-00	METAL 5K
RV14	1-228-457-00	METAL 2K
RV15	1-228-458-00	METAL 5K
RV16	1-228-456-00	METAL 1K
RV17	1-226-369-00	METAL 5K
RV18	1-228-454-00	METAL 200
RV19	1-228-454-00	METAL 200
RV20	1-228-459-00	METAL 10K (NTSC)
RV21	1-228-458-00	METAL 5K (NTSC)
S1	1-552-509-00	SLIDE
S2	1-552-509-00	SLIDE
S3	1-554-923-11	TOGGLE (NTSC)
	1-554-399-00	TOGGLE (PAL)

HN-25, HN-30, HP-14

Ref.No.	Parts No.	Description
HN-25 BOARD		
	1-609-560-00	PRINTED CIRCUIT BOARD "HN-25"
HN-30 BOARD		
	A-7513-069-A	MOUNTED CIRCUIT BOARD "HN-30"
	1-560-707-00	POLARISING KEY
	1-609-999-00	PRINTED CIRCUIT BOARD "HN-27"
CN1	1-562-066-00	RECEPTACLE, 40P FEMALE
CN2	1-562-066-00	RECEPTACLE, 40P FEMALE
CN3	1-562-066-00	RECEPTACLE, 40P FEMALE
CN4	1-562-066-00	RECEPTACLE, 40P FEMALE
CN5	1-562-066-00	RECEPTACLE, 40P FEMALE
CN6	1-562-066-00	RECEPTACLE, 40P FEMALE
CN7	**1-562-112-21**	**RECEPTACLE, 50P MALE**
CN8	1-556-762-00	60P PLUG WITH HARNESS (AT)
CN9	1-556-763-00	40P PLUG WITH HARNESS (SG)
CN10	1-556-764-00	50P PLUG WITH HARNESS (SH)
CN11	1-564-153-00	RECEPTACLE, 12P MALE
	1-933-827-00	12P PLUG WITH HARNESS (PA-HN)
CN12	1-564-532-00	RECEPTACLE, 16P MALE
	1-561-035-00	PLUG, HOUSING 16P
	1-560-767-00	PLUG, CONTACT AWG22 TO 24
	1-560-768-00	PLUG, CONTACT AWG24 TO 28
	1-508-944-00	INDEX PIN
CN13	**1-562-222-00**	**RECEPTACLE, 6P FEMALE "REMOTE"**
CN14	**1-561-781-21**	**RECEPTACLE, BNC "TEST OUT"**
CN15	1-564-156-00	RECEPTACLE, 12P MALE
	1-561-171-00	PLUG, HOUSING 12P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN16	1-564-155-00	RECEPTACLE, 6P MALE
CN17	1-564-153-00	RECEPTACLE, 12P MALE
	1-561-178-00	PLUG, HOUSING 12P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN18	1-564-153-00	RECEPTACLE, 12P MALE
	1-561-178-00	PLUG, HOUSING 12P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN19	1-564-080-00	RECEPTACLE, 12P MALE
	1-561-178-00	PLUG, HOUSING 12P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN20	1-564-079-00	RECEPTACLE, 10P MALE
	1-561-177-00	PLUG, HOUSING 10P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN21	1-564-168-11	RECEPTACLE, 3P MALE
RV1	**1-228-450-00**	**WIREWOUND 10K "PEDESTAL"**
HP-14 BOARD		
	A-7513-059-A	MOUNTED CIRCUIT BOARD "HP-14"
	1-934-869-11	3P PLUG WITH HARNESS
C2	**1-123-827-00**	**ELECT 220 20% 4V**
C5	**1-123-661-00**	**ELECT 100 20% 6.3V**
C6	**1-123-616-00**	**ELECT 4.7 20% 25V**
IC1	**8-751-840-00**	**CX184: SONY**

Ref.No.	Parts No.	Description
RV1	**1-230-337-11**	**METAL 10K "VOLUME"**
SP1	**1-503-059-00**	**4Ω 0.1W**

IE-6/6P BOARD

	A-7511-889-B	MOUNTED CIRCUIT BOARD "IE-6" (NTSC)
	A-7511-911-B	MOUNTED CIRCUIT BOARD "IE-6P" (PAL)
C4	**1-161-894-00**	**CERAMIC 0.1 50V**
C6	**1-161-894-00**	**CERAMIC 0.1 50V**
C12	**1-161-894-00**	**CERAMIC 0.1 50V**
C24	**1-161-894-00**	**CERAMIC 0.1 50V**
C25	**1-161-894-00**	**CERAMIC 0.1 50V**
C26	**1-161-894-00**	**CERAMIC 0.1 50V**
C28	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C37	**1-161-894-00**	**CERAMIC 0.1 50V**
C42	**1-131-377-00**	**TANTALUM 10 10% 10V**
C60	**1-161-894-00**	**CERAMIC 0.1 50V**
C62	**1-161-894-00**	**CERAMIC 0.1 50V**
C65	**1-131-347-00**	**TANTALUM 1 10% 35V**
C66	**1-102-938-00**	**CERAMIC 1PF ±0.5PF 50V**
C82	**1-102-964-00**	**CERAMIC 36P 5% 50V (PAL)**
C83	**1-130-479-00**	**MYLAR 0.0047 5% 50V**
C97	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C98	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C99	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C100	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
CN1	1-560-935-00	RECEPTACLE, 40P MALE
	1-560-707-00	POLARISING KEY
CV1	**1-141-206-00**	**TRIMMER 45PF**
CV2	**1-141-240-00**	**TRIMMER 20PF**
CV3	**1-141-206-00**	**TRIMMER 45PF**

Ref.No.	Parts No.	Description
D4	**8-719-815-55**	**1S1555**
D5	**8-719-709-25**	**1S1925P**
D6	**8-719-100-38**	**RD6.2EB2**
D7	**8-719-709-25**	**1S1925P**
D8	**8-719-709-25**	**1S1925P**
D9	**8-719-815-55**	**1S1555**
D10	**8-719-100-38**	**RD6.2EB2**
D12	**8-719-815-55**	**1S1555**
D13	**8-719-100-28**	**RD4.7EB3**
D14	**8-719-815-55**	**1S1555**
D15	**8-719-815-55**	**1S1555**
DL1	**1-415-265-31**	**1H x 2 (NTSC)**
	1-415-266-31	**1H x 2 (PAL)**
DL2	**1-415-166-00**	**165nS (NTSC)**
	1-415-302-00	**120nS (PAL)**
	(S/N UP TO 22700 BVP-3AP(EK)	
	S/N UP TO 30110 BVP-3AS(AE)	
	S/N UP TO 10055 BVP-30AP(EK))	
	1-415-237-00	**140nS (PAL)**
	(S/N 22701 AND HIGHER BVP-3AP(EK)	
	S/N 30111 AND HIGHER BVP-3AS(AE)	
	S/N 10056 AND HIGHER BVP-30AP(EK))	
IC1	**8-759-907-92**	**μA796HCA: FSC**
IC2	**8-759-907-34**	**μA733HC: FSC**
IC3	**8-759-907-34**	**μA733HC: FSC**
IC4	**8-759-990-62**	**TL062CP: TI**
IC5	**8-759-907-34**	**μA733HC: FSC**
IC6	**8-759-907-92**	**μA796HCA: FSC**
IC7	**8-759-909-96**	**LM711CH: NS**
IC8	**8-749-939-33**	**BX3933: SONY**
IC9	**8-759-240-53**	**TC4053BP: TOSHIBA**
L4	**1-408-358-00**	**MICRO 100**
L5	**1-408-150-00**	**MICRO 22**
L10	**1-408-147-00**	**MICRO 2.2**
L11	**1-408-150-00**	**MICRO 22**
L13	**1-408-357-00**	**MICRO 33 (NTSC)**
	1-408-150-00	**MICRO 22 (PAL)**
L14	**1-408-357-00**	**MICRO 33 (NTSC)**
	1-408-150-00	**MICRO 22 (PAL)**
L18	**1-408-954-00**	**MICRO 47**
L19	**1-408-850-00**	**MICRO 390**
Q1	**8-729-364-12**	**2SC641K**
Q2	**8-729-178-54**	**2SC2785**
Q3	**8-729-110-53**	**2SA1005**
Q4	**8-729-117-54**	**2SA1175**
Q5	**8-729-178-73**	**2SC2787**

Ref.No.	Parts No.	Description
Q6	8-729-178-73	2SC2787
Q7	8-729-110-53	2SA1005
Q8	8-769-132-00	2SK-121-2
Q9	8-729-266-93	2SC2669
Q10	8-729-266-93	2SC2669
Q11	8-729-178-73	2SC2787
Q12	8-729-178-73	2SC2787
Q13	8-729-178-73	2SC2787
Q14	8-729-178-73	2SC2787
Q15	8-729-178-73	2SC2787
Q16	8-729-110-53	2SA1005
Q17	8-729-900-71	J271
Q18	8-729-266-93	2SC2669
Q19	8-729-266-93	2SC2669
Q20	8-729-178-54	2SC2785
Q21	8-729-900-75	J175
Q22	8-729-900-75	J175
Q23	8-729-900-75	J175
Q24	8-729-110-53	2SC1005
Q25	8-729-110-53	2SC1005
Q26	8-729-110-53	2SA1005
Q27	8-729-178-73	2SC2787
Q28	8-729-178-73	2SC2787
Q29	8-729-178-73	2SC2787
Q30	8-729-178-73	2SC2787
Q31	8-729-178-73	2SC2787
Q32	8-769-194-00	2SK43-4
Q33	8-729-110-53	2SA1005
Q34	8-729-110-53	2SA1005
Q35	8-729-178-73	2SC2787
Q36	8-729-178-73	2SC2787
Q37	8-729-110-53	2SA1005
Q38	8-765-222-20	2SC1963
Q39	8-729-800-43	2SK152-3
Q40	8-729-178-73	2SC2787
Q41	8-729-117-54	2SA1175
Q42	8-729-201-84	2SC3112
Q43	8-729-110-53	2SA1005
Q44	8-729-178-73	2SC2787
Q45	8-729-110-53	2SA1005
Q46	8-729-178-73	2SC2787
Q47	8-729-110-53	2SA1005
Q48	8-729-117-54	2SA1175
Q49	8-729-178-54	2SC2785
Q51	8-729-201-84	2SC3112

Ref.No.	Parts No.	Description
Q52	8-729-117-54	2SA1175
Q53	8-729-117-54	2SA1175
Q54	8-729-800-43	2SK152-3
Q55	8-729-110-53	2SA1005
Q56	8-729-364-12	2SC641K
Q57	8-729-117-54	2SA1175
Q58	8-729-117-54	2SA1175
Q59	8-729-117-54	2SA1175
Q60	8-729-117-54	2SA1175
Q61	8-729-178-54	2SC2785
Q62	8-729-364-12	2SC641K
Q63	8-729-900-76	J176
Q64	8-729-178-54	2SC2785
Q65	8-729-178-73	2SC2787
Q66	8-729-178-73	2SC2787
Q67	8-729-117-54	2SA1175
Q68	8-729-117-54	2SA1175
R147	1-215-820-11	METAL 39K 1% 1/8W
RV1	1-228-457-00	METAL 2K
RV2	1-228-470-00	METAL 500
RV4	1-228-456-00	METAL 1K
RV5	1-228-472-00	METAL 2K
RV6	1-228-470-00	METAL 500
RV7	1-228-472-00	METAL 2K
RV8	1-228-457-00	METAL 2K
RV9	1-228-458-00	METAL 5K
RV10	1-228-459-00	METAL 10K
RV11	1-228-458-00	METAL 5K
S1	1-554-399-00	TOGGLE
S2	1-554-076-00	SLIDE
S3	1-554-399-00	TOGGLE
X1	1-527-861-21	30MHz

Ref.No.	Parts No.	Description
PA-37 BOARD		
	A-7513-057-A	MOUNTED CIRCUIT BOARD "PA-37"
C5	**1-163-220-11**	**CERAMIC CHIP 3P 50V**
C10	**1-163-218-11**	**CERAMIC CHIP 1.5P 50V**
C15	**1-163-220-11**	**CERAMIC CHIP 3P 50V**
C16	**1-163-991-11**	**CERAMIC CHIP 0.0022 10% 50V**
CN1	1-564-158-00	RECEPTACLE, 5P MALE
	1-933-833-00	5P PLUG WITH HARNESS (PP-PA)
CN2	1-564-158-00	RECEPTACLE, 5P MALE
	1-933-833-21	5P PLUG WITH HARNESS (PP-PA)
CN3	1-564-158-00	RECEPTACLE, 5P MALE
	1-933-833-31	5P PLUG WITH HARNESS (PP-PA)
CN4	1-564-160-00	RECEPTACLE, 12P MALE
	1-933-827-00	12P PLUG WITH HARNESS (PA-HN)
CV1	**1-141-206-00**	**TRIMMER 45PF**
CV2	**1-141-206-00**	**TRIMMER 45PF**
CV3	**1-141-206-00**	**TRIMMER 45PF**
CV4	**1-141-299-11**	**TRIMMER 6PF**
CV5	**1-141-299-11**	**TRIMMER 6PF**
CV6	**1-141-299-11**	**TRIMMER 6PF**
CV7	**1-141-299-11**	**TRIMMER 6PF**
CV8	**1-141-291-11**	**TRIMMER 20PF**
CV9	**1-141-299-11**	**TRIMMER 6PF**
CV10	**1-141-291-11**	**TRIMMER 20PF**
CV11	**1-141-299-11**	**TRIMMER 6PF**
CV12	**1-141-291-11**	**TRIMMER 20PF**
D1	**8-719-901-33**	**1SS133**
D2	**8-719-901-33**	**1SS133**
D3	**8-719-901-33**	**1SS133**
L1	**1-408-417-21**	**MICRO 47**
L2	**1-408-429-00**	**MICRO 470**
L3	**1-408-417-21**	**MICRO 47**
L4	**1-408-417-21**	**MICRO 47**
L5	**1-408-417-21**	**MICRO 47**
L6	**1-408-429-00**	**MICRO 470**
L7	**1-408-417-21**	**MICRO 47**
L8	**1-408-417-21**	**MICRO 47**
L9	**1-408-417-21**	**MICRO 47**
L10	**1-408-429-00**	**MICRO 470**
L11	**1-408-417-21**	**MICRO 47**
L12	**1-408-417-21**	**MICRO 47**
Q1	**8-729-122-63**	**2SA1226**
Q2	**8-729-101-25**	**2SC1009A**
Q3	**8-729-122-63**	**2SA1226**
Q4	**8-729-101-25**	**2SC1009A**
Q5	**8-729-122-63**	**2SA1226**
Q6	**8-729-101-25**	**2SC1009A**
Q7	**8-729-122-63**	**2SA1226**
Q8	**8-729-101-25**	**2SC1009A**
Q9	**8-729-122-63**	**2SA1226**
Q10	**8-729-101-25**	**2SC1009A**
Q11	**8-729-122-63**	**2SA1226**
Q12	**8-729-101-25**	**2SC1009A**
RV1	**1-228-457-00**	**METAL 2K**
RV2	**1-228-457-00**	**METAL 2K**
RV3	**1-228-461-00**	**METAL 50K**
RV4	**1-228-457-00**	**METAL 2K**
RV5	**1-228-457-00**	**METAL 2K**
RV6	**1-228-461-00**	**METAL 50K**
RV7	**1-228-457-00**	**METAL 2K**
RV8	**1-228-457-00**	**METAL 2K**
RV9	**1-228-461-00**	**METAL 50K**
RV10	**1-228-464-00**	**METAL 500K**
RV11	**1-228-464-00**	**METAL 500K**
RV12	**1-228-464-00**	**METAL 500K**

PP-10 BOARD

	1-608-774-14	PRINTED CIRCUIT BOARD "PP-10"
	1-564-158-00	RECEPTACLE, 5P MALE
C1	**1-163-830-11**	**CERAMIC CHIP 0.022 5% 250V**
Q1	**8-765-710-20**	**2SK284-2**
R1	**1-216-321-11**	**METAL CHIP 2M 2% 1/8W**
R2	**1-216-253-00**	**METAL CHIP 200K 5% 1/8W**

PR-75

Ref. No.	Parts No.	Description
PR-75 BOARD		
	A-7513-356-A	MOUNTED CIRCUIT BOARD "RP-75"
C3	1-161-892-21	CERAMIC 0.047 50V
C4	1-124-271-00	ELECT 1 20% 50V
C6	1-124-283-00	ELECT 4.7 20% 16V
C7	1-161-038-00	CERAMIC CHIP 0.1 25V
C8	1-163-038-00	CERAMIC CHIP 0.1 25V
C13	1-124-584-00	ELECT 100 20% 10V
C23	1-161-892-21	CERAMIC 0.047 50V
C24	1-124-271-00	ELECT 1 20% 50V
C26	1-125-283-00	ELECT 4.7 20% 16V
C33	1-131-347-00	TANTALUM 1 10% 35V
C34	1-131-347-00	TANTALUM 1 10% 35V
C35	1-131-347-00	TANTALUM 1 10% 35V
C43	1-161-892-21	CERAMIC 0.047 50V
C44	1-124-271-00	ELECT 1 20% 50V
C46	1-124-283-00	ELECT 4.7 20% 16V
CN1	1-560-935-00	RECEPTACLE, MALE, 40P
CN2	1-560-690-11	RECEPTACLE, 4P
	1-561-724-00	PLUG, SHORT
CV1	1-141-298-11	10PF~2PF
CV2	1-141-298-11	10PF~2PF
CV3	1-141-298-11	10PF~2PF
CV4	1-141-300-11	CERAMIC TRIMMER
D1	8-719-101-23	1SS123
D2	8-719-815-59	2S1555-S
D3	8-719-101-23	1SS123
D4	8-719-101-98	1SS97-0
D5	8-719-815-59	1S1555-S
D6	8-719-815-59	1S1555-S
D7	8-719-815-59	1S1555-S
D8	8-719-815-59	1S1555-S
D9	8-719-101-23	1SS123
D11	8-719-101-23	1SS123
D12	8-719-815-59	1S1555-S
D13	8-719-101-23	1SS123
D14	8-719-101-98	1SS97-0
D15	8-719-815-59	1S1555-S
D16	8-719-815-59	1S1555-S
D17	8-719-815-59	1S1555-S
D18	8-719-815-59	1S1555-S
D19	8-719-100-03	1S2835
D20	8-719-101-98	1SS97-0
D21	8-719-101-23	1SS123
D22	8-719-815-59	1S1555-S
D23	8-719-101-23	1SS123
D24	8-719-101-98	1SS97-0
D25	8-719-815-59	1S1555-S
D26	8-719-815-59	1S1555-S
D27	8-719-815-59	1S1555-S
D28	8-719-815-59	1S1555-S
D29	8-719-100-03	1S2835
D30	8-719-100-03	1S2835
IC1	8-759-906-53	TL062CPS; TI
IC2	8-759-906-53	TL062CPS; TI
IC3	8-759-906-53	TL062CPS; TI
IC4	8-759-906-53	TL062CPS; TI
IC5	8-759-906-53	TL062CPS; TI
IC6	8-749-931-50	BX-315; SONY
IC7	8-759-200-81	TC4053BF; TOSHIBA
L1	1-408-417-00	MICRO 47
L2	1-408-417-00	MICRO 47
L3	1-408-413-00	MICRO 22
Q1	8-729-175-73	2SC2757
Q2	8-729-175-73	2SC2757
Q3	8-729-175-73	2SC2757
Q4	8-729-175-73	2SC2757
Q5	8-729-109-44	2SK94
Q6	8-729-175-73	2SC2757
Q7	8-729-122-63	2SA1226
Q8	8-729-122-63	2SA1226
Q9	8-729-122-63	2SA1226
Q10	8-729-122-63	2SA1226

Ref. No.	Parts No.	Description
Q11	8-729-175-73	2SC2757
Q12	8-729-175-73	2SC2757
Q13	8-729-175-73	2SC2757
Q14	8-729-122-63	2SA1226
Q15	8-729-175-73	2SC2757
Q16	8-729-175-73	2SC2757
Q17	8-729-175-73	2SC2757
Q18	8-729-122-63	2SA1226
Q19	8-729-122-63	2SA1226
Q21	8-729-175-73	2SC2757
Q22	8-729-175-73	2SC2757
Q23	8-729-175-73	2SC2757
Q24	8-729-175-73	2SC2757
Q25	8-729-109-44	2SK94
Q26	8-729-175-73	2SC2757
Q27	8-729-122-63	2SA1226
Q28	8-729-122-63	2SA1226
Q29	8-729-122-63	2SA1226
Q30	8-729-122-63	2SA1226
Q31	8-729-175-73	2SC2757
Q32	8-729-175-73	2SC2757
Q33	8-729-175-73	2SC2757
Q34	8-729-122-63	2SA1226
Q35	8-729-175-73	2SC2757
Q36	8-729-175-73	2SC2757
Q37	8-729-175-73	2SC2757
Q38	8-729-175-73	2SC2757
Q41	8-729-175-73	2SC2757
Q42	8-729-175-73	2SC2757
Q43	8-729-175-73	2SC2757
Q44	8-729-175-73	2SC2757
Q45	8-729-109-44	2SK94
Q46	8-729-175-73	2SC2757
Q47	8-729-122-63	2SA1226
Q48	8-729-122-63	2SA1226
Q49	8-729-122-63	2SA1226
Q50	8-729-122-63	2SA1226
Q51	8-729-175-73	2SC2757
Q52	8-729-175-73	2SC2757
Q53	8-729-175-73	2SC2757
Q54	8-729-122-63	2SA1226
Q55	8-729-175-73	2SC2757
Q56	8-729-175-73	2SC2757
Q57	8-729-175-73	2SC2757
Q58	8-729-175-73	2SC2757
Q60	8-729-122-63	2SA1226
Q61	8-729-175-73	2SC2757
Q62	8-729-175-73	2SC2757
Q63	8-729-175-73	2SC2757
Q64	8-729-175-73	2SC2757
Q65	8-729-175-73	2SC2757
Q66	8-729-175-73	2SC2757
Q67	8-729-175-73	2SC2757
Q68	8-729-175-73	2SC2757
Q69	8-729-175-73	2SC2757

Ref.No.	Parts No.	Description
Q70	8-729-175-73	2SC2757
Q71	8-729-175-73	2SC2757
Q72	8-729-175-73	2SC2757
Q73	8-729-175-73	2SC2757
Q74	8-729-364-12	2SC641K
Q75	8-729-175-73	2SC2757
Q76	8-729-175-73	2SC2757
R25	1-215-830-11	METAL 100K 1% 1/8W
R28	1-215-820-11	METAL 39K 1% 1/8W
R85	1-215-830-11	METAL 100K 1% 1/8W
R155	1-215-830-11	METAL 100K 1% 1/8W
R240	1-215-822-11	METAL 43K 1% 1/8W
RV1	1-228-456-00	CERMET 1K
RV2	1-228-473-00	CERMET 5K
RV3	1-228-472-00	CERMET 2K
RV4	1-228-458-00	CERMET 5K
RV5	1-228-457-00	CERMET 2K
RV6	1-228-474-00	CERMET 10K
RV7	1-228-470-00	CERMET 500
RV8	1-228-471-00	CERMET 1K
RV9	1-228-457-00	CERMET 2K
RV11	1-228-456-00	CERMET 1K
RV12	1-228-473-00	CERMET 5K
RV13	1-228-472-00	CERMET 2K
RV14	1-228-458-00	CERMET 5K
RV15	1-228-457-00	CERMET 2K
RV16	1-228-474-00	CERMET 10K
RV17	1-228-470-00	CERMET 500
RV18	1-228-471-00	CERMET 1K
RV19	1-228-458-00	CERMET 5K
RV20	1-228-461-00	CERMET 50K
RV21	1-228-456-00	CERMET 1K
RV22	1-228-473-00	CERMET 5K
RV23	1-228-472-00	CERMET 2K
RV24	1-228-458-00	CERMET 5K
RV25	1-228-457-00	CERMET 2K
RV26	1-228-474-00	CERMET 10K
RV27	1-228-470-00	CERMET 500
RV28	1-228-471-00	CERMET 1K
RV29	1-228-458-00	CERMET 5K
RV30	1-228-455-00	CERMET 500
RV31	1-228-459-00	CERMET 10K
RV32	1-228-459-00	CERMET 10K
RV33	1-228-458-00	CERMET 5K
RV34	1-228-458-00	CERMET 5K
RV35	1-228-458-00	CERMET 5K
RV36	1-228-458-00	CERMET 5K

Ref.No.	Parts No.	Description
S1	1-554-076-00	SLIDE
S2	1-554-076-00	SLIDE "MASKING ON/OFF"
S3	1-552-509-00	DIP "R-γ ON/OFF"
S4	1-552-509-00	DIP "G-γ ON/OFF"
S5	1-552-509-00	DIP "B-γ ON/OFF"
S6	1-554-398-00	TOGGLE "R/OFF/B"
S7	1-554-398-00	TOGGLE "G/OFF/-G"
S8	1-554-397-00	TOGGLE "ENC/REG"
S9	1-554-399-00	TOGGLE "KNEE AUT/MAN."
TH1	1-800-946-00	360±5%
TH2	1-800-946-00	360±5%
TH3	1-800-946-00	360±5%

PW-93 BOARD

⚠ A-7511-892-A		MOUNTED CIRCUIT BOARD "PW-93"
C1	1-108-603-00	MYLAR 0.1 5% 50V
C2	1-124-149-00	ELECT 220 20% 25V
C4	1-124-149-00	ELECT 220 20% 25V
C5	1-130-193-00	POLYESTER 0.47 5% 100V
C7	1-130-022-00	CERAMIC 0.0022 5% 50V
C8	1-130-193-00	POLYESTER 0.47 5% 100V
C9	1-131-466-00	TANTALUM 150 20% 16V
C11	1-130-193-00	POLYESTER 0.47 5% 100V
C12	1-131-466-00	TANTALUM 150 20% 16V
C18	1-161-013-00	CERAMIC 0.01 10% 25V
C24	1-131-465-00	TANTALUM 68 20% 16V
C26	1-124-295-00	ELECT 470 20% 25V
C27	1-124-340-00	ELECT 22 20% 200V
C28	1-124-294-00	ELECT 330 20% 25V
C29	1-131-466-00	TANTALUM 150 20% 16V
C30	1-123-384-00	ELECT 10 20% 100V
C31	1-124-341-00	ELECT 1 20% 200V
C32	1-123-384-00	ELECT 10 20% 100V
C33	1-131-561-00	TANTALUM 33 20% 25V
C36	1-108-421-00	MYLAR 0.01 10% 200V
C37	1-123-252-00	ELECT 1 160V
C43	1-123-910-00	ELECT 330 20% 16V
C44	1-123-384-00	ELECT 10 20% 100V
C45	1-106-196-00	MYLAR 0.01 5% 100V
C56	1-125-444-11	DOUBLE LAYERS 0.1F 5.5V

Ref.No.	Parts No.	Description
C58	1-130-193-00	POLYESTER 0.47 5% 100V
C59	1-102-110-00	CERAMIC 220P 10% 50V
C64	1-123-819-00	ELECT 33 25V
C65	1-124-149-00	ELECT 220 20% 25V
C66	1-108-599-00	MYLAR 0.068 5% 50V
C67	1-130-193-00	POLYESTER 0.47 5% 100V
C70	1-131-465-00	TANTALUM 68 20% 16V
C71	1-130-193-00	POLYESTER 0.47 5% 100V
CN1	1-560-935-00	RECEPTACLE, 40P MALE
	1-560-707-00	POLARISING KEY
D3	8-719-815-55	1S1555
D4	8-719-981-00	ERC81-004
D5	8-719-815-55	1S1555
D6	8-719-815-55	1S1555
D7	8-719-981-00	ERC81-004
D10	8-719-100-38	RD6.2EB2
D12	8-719-100-48	RD8.2EB2
D16	8-719-815-55	1S1555
D17	8-719-300-76	RH1A
D18	8-719-982-04	ERB81-004
D19	8-719-982-04	ERB81-004
D20	8-719-300-76	RH1A
D21	8-719-300-76	RH1A
D22	8-719-300-76	RH1A
D23	8-719-300-76	RH1A
D24	8-719-982-04	ERB81-004
D25	8-719-982-04	ERB81-004
D26	8-719-982-04	ERB81-004
D27	8-719-911-55	UO5G
D28	8-719-981-01	ERA81-004
D29	8-719-981-01	ERA81-004
D31	8-719-100-38	RD6.2EB2
D32	8-719-100-38	RD6.2EB2
D33	8-719-100-38	RD6.2EB2
D36	8-719-931-08	EQB01-08

Ref.No.	Parts No.	Description
IC1	8-759-900-64	TL064CN: TI
IC2	8-759-904-94	TL494CN: TI
IC3	8-759-904-94	TL494CN: TI
IC4	8-759-101-54	μPC454D: NEC
IC5	8-759-900-64	TL064CN: TI
IC6	8-759-278-07	TA78L007AP: TOSHIBA
IC7	8-759-278-15	TA78L015AP: TOSHIBA
IC8	8-759-101-54	μPC454D: NEC
IC9	8-759-990-62	TL062CP: TI
⚠IC11	8-759-905-80	AD580M: ANALOG DEVICES
L1	1-408-142-21	22.5
L2	1-408-549-00	150
L3	1-408-549-00	150
L4	1-421-013-00	HORIZONTAL CHOKE 25
L5	1-421-013-00	HORIZONTAL CHOKE 25
L6	1-408-142-21	22.5
L9	1-421-013-00	HORIZONTAL CHOKE 25
Q1	8-729-113-33	2SB733
Q2	8-729-113-33	2SB733
Q3	8-729-113-33	2SB733
Q4	8-729-113-33	2SB733
Q5	8-729-177-33	2SD773
Q6	8-729-113-33	2SB733
Q7	8-729-177-33	2SD773
Q9	8-729-364-12	2SC641K
Q10	8-729-810-62	2SD1061
Q11	8-729-810-62	2SD1061
Q12	8-729-255-12	2SC2551
Q13	8-729-255-12	2SC2551
Q15	8-729-178-54	2SC2785
Q16	8-729-117-54	2SA1175
Q17	8-729-113-33	2SB733
Q18	8-729-113-33	2SB733
Q19	8-729-113-33	2SB733
Q20	8-729-178-54	2SC2785
R10	1-246-462-00	CARBON 360 5% 1/4W
R15	1-217-612-00	WIREWOUND 0.1 2W
R26	1-202-561-00	CARBON 330 5% 1/2W
R56	1-215-459-00	METAL 39K 1% 1/6W
R57	1-215-469-00	METAL 100K 1% 1/6W
R63	1-215-462-00	METAL 51K 1% 1/6W
R64	1-214-954-00	METAL 390K 1% 1/4W
R70	1-215-496-00	METAL 3.3K 1/4W
R73	1-217-643-00	WIREWOUND 10 1% 1/2W
R74	1-217-643-00	WIREWOUND 10 1% 1/2W

Ref.No.	Parts No.	Description
R75	1-217-643-00	WIREWOUND 10 1% 1/2W
R76	1-215-503-00	METAL 12K 1/4W
R79	1-217-643-00	WIREWOUND 10 1% 1/2W
R80	1-217-643-00	WIREWOUND 10 1% 1/2W
R81	1-217-643-00	WIREWOUND 10 1% 1/2W
R82	1-215-502-00	METAL 100 1/4W
R85	1-217-643-00	WIREWOUND 10 1% 1/2W
R86	1-217-643-00	WIREWOUND 10 1% 1/2W
R87	1-217-643-00	WIREWOUND 10 1% 1/2W
RV1	1-228-456-00	METAL 1K
⚠RV2	1-228-456-00	METAL 1K
RV3	1-228-455-00	METAL 500
RV4	1-228-454-00	METAL 200
RV5	1-230-097-00	METAL 100
RV6	1-228-457-00	METAL 2K
RV7	1-230-097-00	METAL 100
RV9	1-230-097-00	METAL 100
T1	1-447-475-00	DC-DC CONVERTER

SG-63A

Ref. No.	Parts No.	Description
SG-63A BOARD		
	A-7511-913-B	MOUNTED CIRCUIT BOARD "SG-63A"
C4	**1-107-075-00**	**MICA 39PF 5% 50V**
C19	**1-163-243-00**	**CERAMIC CHIP 47PF 5%**
C27	**1-163-141-00**	**CERAMIC CHIP 0.001 5% 50V**
C28	**1-163-141-00**	**CERAMIC CHIP 0.001 5% 50V**
C33	**1-163-233-00**	**CERAMIC CHIP 18PF 5%**
C34	**1-124-169-00**	**ELECT 100 20% 10V**
C35	**1-107-075-00**	**MICA 39PF 5% 50V**
C36	**1-107-075-00**	**MICA 39PF 5% 50V**
C42	**1-163-255-00**	**CERAMIC CHIP 150PF 5%**
C49	**1-130-483-00**	**MYLAR 0.01 5% 50V**
C51	**1-161-009-00**	**CERAMIC 0.0047 10% 25V**
CN1	1-564-083-00	RECEPTACLE, 40P MALE
	1-556-763-00	40P PLUG WITH HARNESS
CN2	**1-561-724-00**	**SOKET, CONNECTOR**
	1-560-690-00	**PLUG, SHORT 4P**
CN3	**1-561-724-00**	**SOKET, CONNECTOR**
	1-560-690-00	**PLUG, SHORT 4P**
CN4	**1-561-724-00**	**SOKET, CONNECTOR**
D1	**8-719-100-03**	**1S2835**
D2	**8-719-100-03**	**1S2835**
D3	**8-719-101-23**	**1SS123**
D5	**8-719-100-05**	**1S2837**
IC1	**8-759-240-53**	**TC4053BP: TOSHIBA**
IC2	**8-759-900-86**	**SN74LS86N: TI**
IC3	**8-759-901-23**	**SN74LS123N: TI**
IC4	**8-759-990-62**	**TL062CP: TI**
IC5	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC6	**8-759-200-79**	**TC4049BF: TOSHIBA**
IC7	**8-759-906-53**	**TL062CPS: TI**
IC8	**8-759-200-81**	**TC4053BF: TOSHIBA**
IC9	**8-757-731-00**	**CX773A: SONY**
IC10	**8-759-907-21**	**CX7969: SONY**
IC11	**8-759-200-80**	**TC4050BF: TOSHIBA**
IC12	**8-749-910-40**	**BX1040: SONY**
IC13	**8-759-101-12**	**μPC311G2: NEC**
IC14	**8-757-903-00**	**CX7903: SONY**
IC15	**8-759-902-21**	**SN74LS221N: TI**

Ref. No.	Parts No.	Description
L7	**1-408-150-00**	**MICRO 22**
L8	**1-408-150-00**	**MICRO 22**
L11	**1-408-147-00**	**MICRO 2.2**
L13	**1-408-151-00**	**MICRO 47**
Q1	**8-729-122-63**	**2SA1226**
Q2	**8-729-101-25**	**2SC1009A**
Q3	**8-729-101-25**	**2SC1009A**
Q4	**8-729-101-25**	**2SC1009A**
Q6	**8-729-364-12**	**2SC641K**
Q7	**8-729-101-25**	**2SC1009A**
Q8	**8-729-122-63**	**2SA1226**
Q9	**8-729-101-25**	**2SC1009A**
Q10	**8-729-364-12**	**2SC641K**
Q11	**8-723-305-00**	**2SK43-5**
Q14	**8-729-122-63**	**2SA1226**
RV1	**1-228-460-00**	**METAL 20K**
RV2	**1-228-460-00**	**METAL 20K**
RV3	**1-228-459-00**	**METAL 10K**
RV4	**1-228-461-00**	**METAL 50K**
S1	**1-554-076-00**	**SLIDE**
S2	**1-554-076-00**	**SLIDE**
S3	**1-553-925-00**	**ROTARY**
S4	**1-554-076-00**	**SLIDE**
X1	**1-567-112-00**	**17.734475MHz**
X2	**1-567-086-00**	**14.1875MHz**

Ref.No.	Parts No.	Description
SH-8A BOARD		
	A-7513-064-A	MOUNTED CIRCUIT BOARD "SH-8A"
C16	1-130-192-00	POLYESTER 0.22 5% 100V
C24	1-163-231-00	CERAMIC CHIP 15PF 5% 50V
C25	1-163-231-00	CERAMIC CHIP 15PF 5% 50V
C26	1-163-231-00	CERAMIC CHIP 15PF 5% 50V
C28	1-163-251-00	CERAMIC CHIP 100PF 5% 50V
C41	1-131-361-00	TANTALUM 2.2 10% 20V
C42	1-131-361-00	TANTALUM 2.2 10% 20V
C43	1-163-141-00	CERAMIC CHIP 0.001 5% 50V
C49	1-124-287-00	ELECT (NONPOLAR) 10 20% 10V
C50	1-163-267-00	CERAMIC CHIP 470P 5% 50V
C51	1-163-141-00	CERAMIC CHIP 0.001 5% 50V
C52	1-163-141-00	CERAMIC CHIP 0.001 5% 50V
C53	1-163-141-00	CERAMIC CHIP 0.001 5% 50V
CN1	1-560-675-00	RECEPTACLE, 50P MALE
	1-556-764-00	50P PLUG WITH HARNESS
CN2	1-564-151-00	RECEPTACLE, 8P MALE
	1-561-176-00	PLUG, HOUSING 8P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN3	1-564-152-00	RECEPTACLE, 10P MALE
	1-561-177-00	PLUG, HOUSING 10P
	1-560-768-00	PLUG, CONTACT
	1-508-944-00	INDEX PIN
CN4	1-564-159-00	RECEPTACLE, 7P MALE
	1-933-834-00	PLUG 7P WITH HARNESS
D1	8-719-100-05	1S2837
D2	8-719-100-03	1S2835
D4	8-719-100-05	1S2837
D5	8-719-100-05	1S2837
D6	8-719-100-05	1S2837
D7	8-719-105-32	RD2.7MB2
D8	8-719-100-05	1S2837
D10	8-719-100-03	1S2835
D11	8-719-100-03	1S2835
D12	8-719-100-03	1S2835
D13	8-719-100-03	1S2835
IC1	8-759-906-54	TL064CNS: TI
IC2	8-759-906-54	TL064CNS: TI
IC3	8-759-906-54	TL064CNS: TI
IC4	8-759-200-90	TC4538BF: TOSHIBA
IC5	8-759-906-54	TL064CNS: TI
IC7	8-759-200-81	TC4053BF: TOSHIBA
IC8	8-759-906-54	TL064CNS: TI
IC9	8-759-200-99	TC4051BF: TOSHIBA

Ref.No.	Parts No.	Description
Q1	8-723-305-00	2SK43-5
Q2	8-723-305-00	2SK43-5
Q3	8-723-305-00	2SK43-5
Q4	8-729-101-25	2SC1009A
Q5	8-729-101-25	2SC1009A
Q6	8-729-122-63	2SA1226
Q7	8-729-122-63	2SA1226
Q8	8-729-122-63	2SA1226
Q9	8-723-305-00	2SK43-5
Q10	8-723-305-00	2SK43-5
Q11	8-723-305-00	2SK43-5
Q12	8-729-101-25	2SC1009A
Q14	8-729-122-63	2SA1226
Q15	8-729-101-25	2SC1009A
Q16	8-729-122-63	2SA1226
Q17	8-729-101-25	2SC1009A
Q18	8-729-101-25	2SC1009A
Q19	8-729-122-63	2SA1226
Q22	8-729-101-25	2SC1009A
Q23	8-729-101-25	2SC1009A
Q24	8-729-101-25	2SC1009A
Q25	8-729-101-25	2SC1009A
Q26	8-729-122-63	2SA1226
Q27	8-729-101-25	2SC1009A
R4	1-246-441-00	CARBON 47 5% 1/4W
R90	1-215-462-00	METAL 51K 1% 1/6W
R92	1-215-462-00	METAL 51K 1% 1/6W
R95	1-215-473-00	METAL 150K 1% 1/6W
RV1	1-228-462-00	METAL 100K
RV2	1-228-462-00	METAL 100K
RV3	1-228-462-00	METAL 100K
RV4	1-228-462-00	METAL 100K
RV5	1-228-462-00	METAL 100K

Ref.No.	Parts No.	Description
RV6	**1-228-462-00**	**METAL 100K**
RV7	**1-228-462-00**	**METAL 100K**
RV8	**1-228-462-00**	**METAL 100K**
RV9	**1-228-462-00**	**METAL 100K**
RV10	**1-228-462-00**	**METAL 100K**
RV11	**1-228-462-00**	**METAL 100K**
RV12	**1-228-462-00**	**METAL 100K**
RV13	**1-228-463-00**	**METAL 200K**
RV14	**1-228-463-00**	**METAL 200K**
RV15	**1-228-463-00**	**METAL 200K**
RV16	**1-228-463-00**	**METAL 200K**
RV17	**1-228-462-00**	**METAL 100K**
RV18	**1-228-462-00**	**METAL 100K**
RV19	**1-228-462-00**	**METAL 100K**
RV20	**1-228-459-00**	**METAL 10K**
RV21	**1-228-463-00**	**METAL 200K**
RV22	**1-228-463-00**	**METAL 200K**
RV23	**1-228-463-00**	**METAL 200K**
RV24	**1-228-463-00**	**METAL 200K**
RV25	**1-228-463-00**	**METAL 200K**
RV26	**1-228-463-00**	**METAL 200K**
RV27	**1-228-462-00**	**METAL 100K**
RV28	**1-228-462-00**	**METAL 100K**
RV29	**1-228-462-00**	**METAL 100K**
RV30	**1-228-462-00**	**METAL 100K**
RV31	**1-228-452-00**	**METAL 50**
RV32	**1-228-462-00**	**METAL 100K**
RV33	**1-228-462-00**	**METAL 100K**
RV34	**1-228-462-00**	**METAL 100K**
RV35	**1-228-462-00**	**METAL 100K**
RV36	**1-228-459-00**	**METAL 10K**
S1	**1-552-509-00**	**SLIDE**
S2	**1-552-509-00**	**SLIDE**

DUS-122 BOARD

All of the component parts on the DUS-122 board are supplied together when you order SH-8A board

1-619-130-11 PC. BOARD DUS-122

RV1	**1-228-461-00**	**CERMET 50K**
RV2	**1-228-461-00**	**CERMET 50K**

Ref.No.	Parts No.	Description

SW-77 BOARD

A-7520-131-A MOUNTED CIRCUIT BOARD "SW-77"

CN1	1-564-172-00	RECEPTACLE, 7P MALE
	1-933-834-00	PLUG 7P WITH HARNESS
S1	**1-554-396-00**	**TOGGLE "AUTO CENT"**
S2	**1-554-395-00**	**TOGGLE "AUTO W/B BAL"**

SW-78 BOARD

S/N UP TO 50065 BVP-30(J)	UP TO 16415 BVP-3A(J)
S/N UP TO 60510 BVP-30(UC)	UP TO 42020 BVP-3A(UC)
S/N UP TO 10160 BVP-30AP(EK)	UP TO 10106 BVP-3AN(J)
	UP TO 22710 BVP-3AP(EK)
	UP TO 30110 BVP-3AS(AE)

A-7511-886-A MOUNTED CIRCUIT BOARD "SW-78"

D1	**8-179-191-07**	**RD9.1EB**
D2	**8-719-815-85**	**1S1585**
D3	**8-719-815-85**	**1S1585**
D4	**8-719-815-85**	**1S1585**
S1	**1-554-356-00**	**TOGGLE "CAMERA/VTR"**
S2	**1-554-400-00**	**TOGGLE "GAIN"**
S3	**1-554-355-00**	**TOGGLE "OUTPUT"**
S4	**1-554-355-00**	**TOGGLE "WHITE BAL"**

Ref.No.	Parts No.	Description

SW-207 BOARD

S/N 50066 AND HIGHER BVP-30(J)
16416 AND HIGHER BVP-3A(J)
S/N 60511 AND HIGHER BVP-30(UC)
42021 AND HIGHER BVP-3A(UC)
S/N 10161 AND HIGHER BVP-30AP(EK)
22711 AND HIGHER BVP-3AP(EK)
30111 AND HIGHER BVP-3AS(AE)

	1-621-164-11	PC BOARD, SW-207
CN1	1-506-467-11	PIN, CONNECTOR 2P
D1	**8-719-100-54**	**RD9.1EB1**
D2	**8-719-100-55**	**1S1555**
D3	**8-719-100-55**	**1S1555**
D4	**8-719-100-55**	**1S1555**
R1	**1-215-433-00**	**METAL 3.3K 1% 1/6W**
R2	**1-215-445-00**	**METAL 10K 1% 1/6W**
R3	**1-215-445-00**	**METAL 10K 1% 1/6W**
R4	**1-215-457-00**	**METAL 33K 1% 1/6W**
R5	**1-215-467-00**	**METAL 82K 1% 1/6W**
R6	**1-215-471-00**	**METAL 120K 1% 1/6W**
S1	**1-554-356-00**	**SWITCH, TOGGLE**
S2	**1-554-400-00**	**SWITCH, TOGGLE**
S3	**1-570-911-11**	**SWITCH, TOGGLE**
S4	**1-554-355-00**	**SWITCH, TOGGLE**

SW-79 BOARD

	A-7520-132-A	MOUNTED CIRCUIT BOARD "SW-79"
S1	**1-553-739-00**	**PUSH "VTR"**

Ref.No.	Parts No.	Description

VA-14 BOARD

	A-7511-887-A	MOUNTED CIRCUIT BOARD "VA-14"
C6	**1-124-290-00**	**ELECT (NONPOLAR) 47 20% 10V**
C7	**1-124-271-00**	**ELECT (NONPOLAR) 1 20% 50V**
C12	**1-124-139-00**	**ELECT 100 20% 10V**
C23	**1-124-290-00**	**ELECT (NONPOLAR) 47 20% 10V**
C24	**1-124-271-00**	**ELECT (NONPOLAR) 1 20% 50V**
C28	**1-124-139-00**	**ELECT 100 20% 10V**
C33	**1-131-368-00**	**TANTALUM 3.3 10% 16V**
C42	**1-124-290-00**	**ELECT (NONPOLAR) 47 20% 10V**
C43	**1-124-271-00**	**ELECT (NONPOLAR) 1 20% 50V**
C46	**1-124-139-00**	**ELECT 100 20% 10V**
C56	**1-123-380-00**	**ELECT 1 20% 100V**
C57	**1-123-383-00**	**ELECT 4.7 20% 100V**
C60	**1-123-332-00**	**ELECT 47 20% 25V**
C61	**1-123-380-00**	**ELECT 1 20% 100V**
C66	**1-123-380-00**	**ELECT 1 20% 100V**
C71	**1-123-380-00**	**ELECT 1 20% 100V**
C75	**1-123-379-00**	**ELECT 0.47 20% 100V**
C76	**1-123-379-00**	**ELECT 0.47 20% 100V**
C79	**1-123-352-00**	**ELECT 1M 20% 100V**
C82	**1-108-555-00**	**MYLAR 0.001 5% 50V**
C83	**1-106-172-00**	**MYLAR 0.001 5% 100V**
C92	**1-101-881-00**	**CERAMIC 47PF 10% 50V**
C93	**1-101-881-00**	**CERAMIC 47PF 10% 50V**
C94	**1-101-881-00**	**CERAMIC 47PF 10% 50V**
C96	**1-161-005-00**	**CERAMIC 0.0022 10% 25V**
C97	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C98	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C99	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C100	**1-161-013-00**	**CERAMIC 0.01 10% 25V**
C101	**1-163-083-00**	**CERAMIC CHIP 1PF**
C102	**1-163-083-00**	**CERAMIC CHIP 1PF**
C103	**1-163-083-00**	**CERAMIC CHIP 1PF**
CN1	1-560-935-00	RECEPTACLE, 40P MALE
	1-560-707-00	POLARISING KEY
CV1	**1-141-206-00**	**TRIMMER 45PF**
CV2	**1-141-206-00**	**TRIMMER 45PF**
CV3	**1-141-206-00**	**TRIMMER 45PF**

VA-14

Ref.No.	Parts No.	Description
D1	8-719-815-59	1S1555S
D2	8-719-815-59	1S1555S
D3	8-719-815-59	1S1555S
D4	8-719-815-85	1S1585
D5	8-719-815-55	1S1555
D6	8-719-815-55	1S1555
D7	8-719-815-55	1S1555
D8	8-719-815-55	1S1555
D9	8-719-815-85	1S1585
D10	8-719-815-55	1S1555
D11	8-719-815-85	1S1585
D12	8-719-815-55	1S1555
D13	8-719-815-55	1S1555
D14	8-719-815-55	1S1555
D15	8-719-815-55	1S1555
D16	8-719-815-55	1S1555
D17	8-719-815-55	1S1555
D18	8-719-815-59	1S1555-S
IC1	8-749-910-55	BX1055: SONY
IC2	8-749-910-82	BX1082: SONY
IC3	8-759-907-92	μA796HCA: FSC
IC4	8-749-910-55	BX1055: SONY
IC5	8-749-910-82	BX1082: SONY
IC6	8-759-907-92	μA796HCA: FSC
IC7	8-749-910-55	BX1055: SONY
IC8	8-749-910-82	BX1082: SONY
IC9	8-759-907-92	μA796HCA: FSC
IC10	8-741-111-60	BX1116: SONY
IC11	8-741-111-60	BX1116: SONY
IC12	8-741-111-60	BX1116: SONY
IC13	8-759-240-11	TC4011BP: TOSHIBA
Q1	8-729-117-54	2SA1175
Q2	8-729-117-54	2SA1175
Q3	8-765-450-20	2SK125-2
Q4	8-729-178-54	2SC2785
Q5	8-765-450-20	2SK125-2
Q6	8-765-450-20	2SK125-2
Q7	8-765-450-20	2SK125-2
Q8	8-729-178-54	2SC2785
Q9	8-729-178-54	2SC2785
Q10	8-729-178-54	2SC2785
Q11	8-729-110-53	2SA1005
Q12	8-729-201-84	2SC3112B
Q13	8-729-178-54	2SC2785
Q14	8-729-117-54	2SA1175
Q15	8-729-117-54	2SA1175

Ref.No.	Parts No.	Description
Q16	8-729-117-54	2SA1175
Q17	8-765-450-20	2SK125-2
Q18	8-729-178-54	2SC2785
Q19	8-765-450-20	2SK125-2
Q20	8-765-450-20	2SK125-2
Q21	8-765-450-20	2SK125-2
Q22	8-765-163-00	2SK152-3
Q23	8-729-178-73	2SC2787K
Q24	8-729-178-73	2SC2787K
Q25	8-729-178-73	2SC2787K
Q26	8-729-110-53	2SA1005
Q27	8-729-201-84	2SC3112B
Q28	8-729-178-54	2SC2785
Q29	8-729-117-54	2SA1175
Q30	8-729-117-54	2SA1175
Q31	8-729-117-54	2SA1175
Q32	8-729-117-54	2SA1175
Q33	8-765-450-20	2SK125-2
Q34	8-729-178-54	2SC2785
Q35	8-765-450-20	2SK125-2
Q36	8-765-450-20	2SK125-2
Q37	8-765-450-20	2SK125-2
Q38	8-729-178-54	2SC2785
Q39	8-729-178-54	2SC2785
Q40	8-729-178-54	2SC2785
Q41	8-729-110-53	2SA1005
Q42	8-729-201-84	2SC3112B
Q43	8-729-178-54	2SC2785
Q44	8-729-117-54	2SA1175
Q45	8-729-110-53	2SA1005
Q46	8-729-117-54	2SA1175
Q47	8-729-117-54	2SA1175
Q48	8-729-110-53	2SA1005
Q49	8-729-178-54	2SC2785
Q50	8-729-117-54	2SA1175
Q51	8-729-117-54	2SA1175
Q52	8-729-117-54	2SA1175
Q53	8-729-117-54	2SA1175
Q54	8-729-117-54	2SA1175
Q55	8-729-178-54	2SC2785
Q56	8-729-110-53	2SA1005
Q57	8-729-200-17	2SA1091
Q58	8-729-178-54	2SC2785

Ref.No.	Parts No.	Description
R166	1-215-819-11	METAL 36K 1% 1/8W
R168	1-215-819-11	METAL 36K 1% 1/8W
R188	1-215-822-11	METAL 47K 1% 1/8W
R196	1-215-822-11	METAL 47K 1% 1/8W
R205	1-215-830-11	METAL 100K 1% 1/8W
R207	1-215-822-11	METAL 150K 1% 1/8W
R208	1-215-477-00	METAL 220K 1% 1/6W
R237	1-215-452-00	METAL 20K 1% 1/6W
R238	1-215-452-00	METAL 20K 1% 1/6W
R239	1-215-452-00	METAL 20K 1% 1/6W
R305	1-215-458-00	METAL 36K 1% 1/6W
R306	1-215-458-00	METAL 36K 1% 1/6W
RV1	1-228-472-00	METAL 2K
RV2	1-228-472-00	METAL 2K
RV3	1-228-472-00	METAL 2K
RV5	1-228-459-00	METAL 10K
RV6	1-228-460-00	METAL 20K
RV7	1-228-475-00	METAL 20K
RV8	1-228-461-00	METAL 50K
RV9	1-228-461-00	METAL 50K
RV11	1-228-459-00	METAL 10K
RV12	1-228-460-00	METAL 20K
RV13	1-228-475-00	METAL 20K
RV14	1-228-461-00	METAL 50K
RV15	1-228-461-00	METAL 50K
RV17	1-228-459-00	METAL 10K
RV18	1-228-460-00	METAL 20K
RV19	1-228-475-00	METAL 20K
RV20	1-228-461-00	METAL 50K
RV21	1-228-461-00	METAL 50K
RV22	1-228-454-00	METAL 200
RV23	1-228-454-00	METAL 200
RV24	1-228-454-00	METAL 200
RV26	1-228-459-00	METAL 10K
RV32	1-228-455-00	METAL 500
RV33	1-228-455-00	METAL 500
RV34	1-228-455-00	METAL 500
RV35	1-228-458-00	METAL 5K
RV36	1-228-460-00	RES, ADJ, CERMET 20K
S1	1-552-509-00	SLIDE

Ref.No.	Parts No.	Description
CAMERA FRAME		
	1-933-830-00	PICKUP TUBE SOCKET WITH HARNESS (R)
	1-933-831-00	PICKUP TUBE SOCKET WITH HARNESS (G)
	1-933-832-00	PICKUP TUBE SOCKET WITH HARNESS (B)
CN101	1-934-868-11	VF 20P CONNECTOR WITH HARNESS
	1-561-812-00	RECEPTACLE, 20P FEMALE "VF"
CN102	1-934-795-11	CCU-15 CONNECTOR WITH HARNESS
CN103	1-561-233-21	RECEPTACLE, 6P FEMALE "LENS"
CN104	1-562-221-21	RECEPTACLE, 12P FEMALE "VF"
VIEW FINDER		
LP-28 BOARD		
	A-7513-066-A	MOUNTED CIRCUIT BOARD "LP-28"
CN1	1-564-005-00	RECEPTACLE, 6P MALE
	1-562-151-11	PLUG HOUSING 6P
	1-564-026-00	PLUG CONTACT
CN2	1-564-006-11	RECEPTACLE, 7P MALE
	1-562-152-11	PLUG HOUSING 7P
	1-564-026-00	PLUG CONTACT
D1	8-719-812-43	TLG124A "FILTER/AUDIO 1"
D2	8-719-812-43	TLG124A "FILTER/AUDIO 2"
D3	8-719-812-43	TLG124A "FILTER/AUDIO 3"
D4	8-719-812-43	TLG124A "FILTER/AUDIO 4"
D5	8-719-812-41	TLR124 "FILTER/AUDIO 5"
D6	8-719-812-44	TLO124 "GAIN UP"
D7	8-719-812-43	TLG124A "W/B CENT"
D8	8-719-900-92	GL9PR20 "BATT"
D9	8-719-900-92	GL9PR20 "REC"
D10	8-719-909-20	GL9NG2 "10M"
D11	8-719-909-20	GL9NG2 "5M"

MC-19, SW-80, VF-22

Ref.No.	Parts No.	Description
MC-19 BOARD		
	1-606-127-00	PRINTED CIRCUIT BOARD "MC-19"
CN1	1-561-816-00	RECEPTACLE, 6P FEMALE
SW-80 BOARD		
	1-612-778-11	PRINTED CIRCUIT BOARD "SW-80"
D1	**8-719-101-98**	**1SS97**
D2	**8-719-815-55**	**1S1555**
S101	**1-554-922-11**	**TOGGLE "TALLY/ZEBRA"**
VF-22 BOARD		
	⚠ A-7513-067-A	MOUNTED CIRCUIT BOARD "VF-22"
C10	**1-163-259-00**	**CERAMIC CHIP 220PF 5% 50V**
C13	**1-163-243-00**	**CERAMIC CHIP 47PF 5% 50V**
C15	**1-106-192-00**	**MYLAR 0.0068 5% 100V**
⚠C18	**1-136-287-11**	**POLYESTER 0.0047 5% 100V**

C19 IS SELECTABLE PARTS FOR ADJUSTMENT (REFER TO Flyback Pulse Width Adjustment)

	1-136-287-11	**POLYESTER 0.0047 5% 100V**
	1-136-288-11	**POLYESTER 0.0051 5% 100V**
	1-136-289-11	**POLYESTER 0.0056 5% 100V**
⚠C19	**1-136-290-11**	**POLYESTER 0.0062 5% 100V**
	1-136-291-11	**POLYESTER 0.0068 5% 100V**
	1-136-292-11	**POLYESTER 0.0075 5% 100V**
	1-136-293-11	**POLYESTER 0.0082 5% 100V**
	1-136-306-11	**POLYESTER 0.0039 5% 100V**
	1-136-307-11	**POLYESTER 0.0043 5% 100V**

Ref.No.	Parts No.	Description
C21	**1-163-991-11**	**CERAMIC CHIP 0.0022 10% 50V**
C22	**1-123-384-00**	**ELECT 10 20% 100V**
C23	**1-162-870-11**	**CERAMIC CHIP 0.0022 10% 1KV**
C24	**1-130-815-00**	**FILM 0.015 5% 630V**
C27	**1-124-168-00**	**ELECT 100 20% 16V**
C29	**1-131-361-00**	**TANTALUM 2.2 10% 16V**
C33	**1-130-487-00**	**MYLAR 0.022 5% 50V**
C37	**1-130-481-00**	**MYLAR 0.0068 5% 50V**
C38	**1-130-477-00**	**MYLAR 0.0033 5% 50V**
C44	**1-130-479-00**	**MYLAR 0.0047 5% 50V**
C49	**1-124-168-00**	**ELECT 100 20% 16V**
C50	**1-123-296-00**	**ELECT 220 20% 6.3V**
C53	**1-163-991-11**	**CERAMIC CHIP 0.0022 10% 50V**
C55	**1-106-188-00**	**MYLAR 0.0047 5% 100V**
C59	**1-131-368-00**	**TANTALUM 3.3 10% 16V**
CN1	1-564-004-00	RECEPTACLE, 5P MALE
	1-562-150-11	PLUG HOUSING 5P
	1-564-026-00	PLUG CONTACT
CN2	1-564-002-00	RECEPTACLE, 3P MALE
	1-562-148-11	PLUG HOUSING 3P
	1-564-026-00	PLUG CONTACT
CN3	1-564-003-00	RECEPTACLE, 4P MALE
	1-562-149-11	PLUG HOUSING 4P
	1-564-026-00	PLUG CONTACT
CN4	1-564-002-00	RECEPTACLE, 3P MALE
	1-562-148-11	PLUG HOUSING 3P
	1-564-026-00	PLUG CONTACT
CN5	1-564-006-11	RECEPTACLE, 7P MALE
	1-562-152-11	PLUG HOUSING 7P
	1-564-026-00	PLUG CONTACT
CN6	1-564-009-00	RECEPTACLE, 10P MALE
	1-562-155-11	PLUG HOUSING 10P
	1-564-026-00	PLUG CONTACT
CN7	1-564-001-11	RECEPTACLE, 2P MALE
	1-562-147-11	PLUG HOSING 2P
	1-564-026-00	PLUG CONTACT
CN8	1-564-002-00	RECEPTACLE, 3P MALE
	1-562-148-11	PLUG HOUSING 3P
	1-564-026-00	PLUG CONTACT
D1	**8-719-815-55**	**1S1555**
D2	**8-719-815-55**	**1S1555**
D3	**8-719-101-23**	**1SS123**
D4	**8-719-100-05**	**1S2837**
D5	**8-719-101-23**	**1SS123**
D7	**8-719-900-93**	**V09C**
D8	**8-719-901-19**	**V11N**
D10	**8-719-900-93**	**V09C**
D11	**8-719-901-19**	**V11N**
D12	**8-719-815-55**	**1S1555**
D13	**8-719-101-23**	**1SS123**
D14	**8-719-800-76**	**1SS226**

Ref.No.	Parts No.	Description
⚠IC1	8-759-300-28	HA11423MP: HITACHI
IC2	8-759-801-06	LB1423N: SANYO
L1	1-408-406-00	MICRO 5.6
L2	1-408-406-00	MICRO 5.6
L3	1-459-394-00	HORIZONTAL LINEARITY
L4	1-408-080-00	MICRO 100
Q1	8-729-100-66	2SC1623
Q2	8-729-100-66	2SC1623
Q3	8-729-100-66	2SC1623
Q4	8-729-100-76	2SA812
Q5	8-729-100-76	2SA812
Q6	8-729-109-44	2SK94
Q7	8-729-100-76	2SA812
Q8	8-729-800-32	2SC2362K
Q9	8-729-175-73	2SC2757
Q10	8-729-800-32	2SC2362K
Q11	8-729-800-28	2SA1016K
Q12	8-729-102-62	2SC1623
Q13	8-727-587-28	2SC756-872
Q14	8-729-901-27	DTC144WK
Q15	8-729-901-27	DTC144WK
Q17	8-729-901-27	DTC144WK
Q18	8-729-901-27	DTC144WK
Q19	8-729-102-62	2SC1623
Q20	8-729-102-62	2SC1623
Q21	8-729-102-62	2SC1623
Q22	8-729-100-76	2SA812
Q23	8-729-100-76	2SA812
Q24	8-729-216-32	2SA1163
Q25	8-729-216-32	2SA1163
R33	1-215-487-11	METAL 560K 1% 1/6W
R85	1-215-490-00	METAL 750K 1% 1/6W
R86	1-215-479-00	METAL 270K 1% 1/6W
R97	1-215-493-00	METAL 1M 1% 1/6W

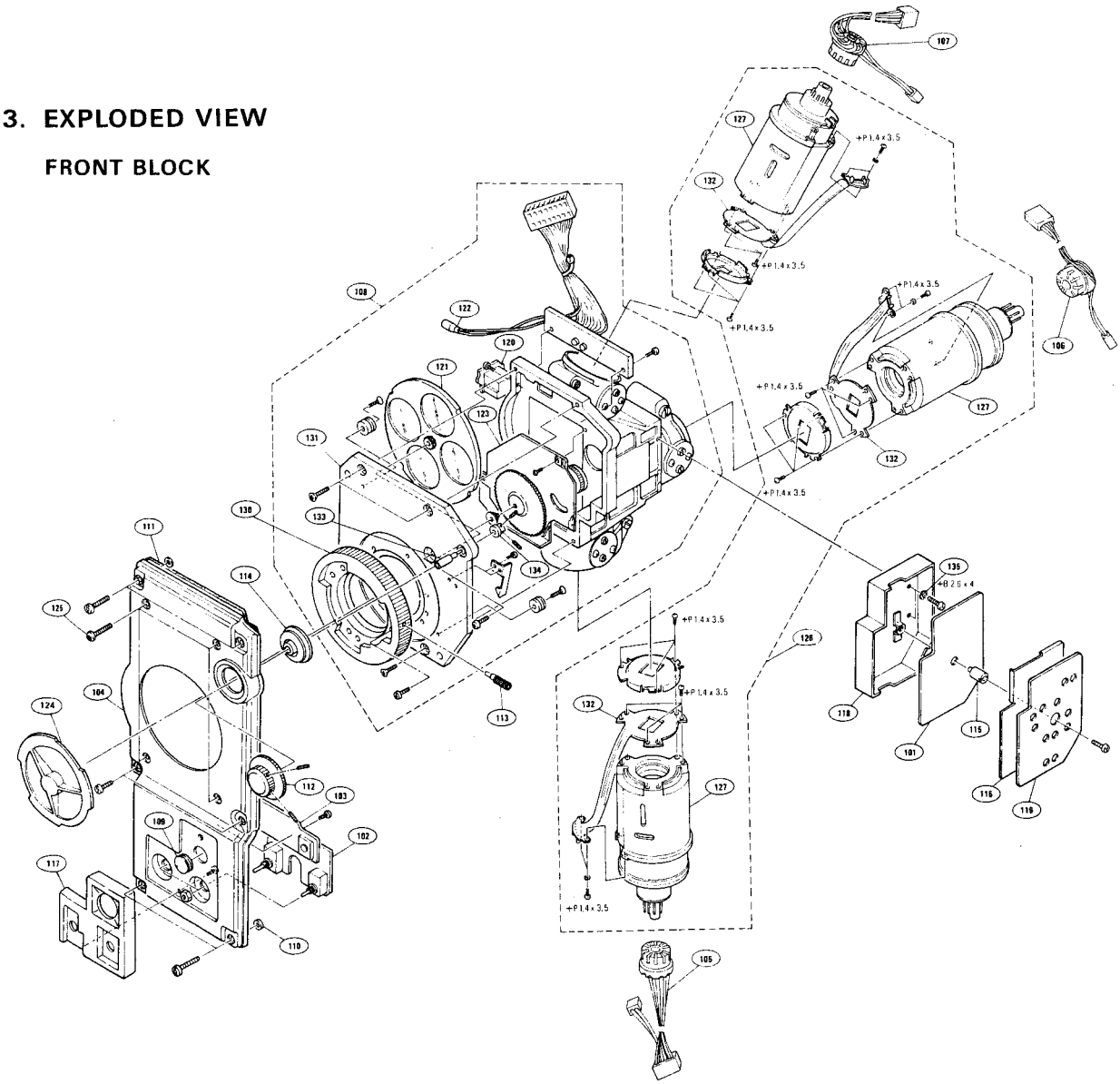
Ref.No.	Parts No.	Description
⚠RV1	1-228-452-00	METAL 50
RV2	1-228-466-00	METAL 2M
RV3	1-228-466-00	METAL 2M
RV4	1-228-458-00	METAL 5K
RV5	1-228-458-00	METAL 5K
RV6	1-228-455-00	METAL 500
RV7	1-228-458-00	METAL 5K
RV8	1-228-454-00	METAL 200
RV9	1-228-464-00	METAL 500K
RV10	1-228-463-00	METAL 200K
RV11	1-228-461-00	METAL 50K
S1	1-554-371-00	PUSH
T1	1-446-106-00	HEATER PULS
⚠T2	1-439-225-21	FLYBACK

VIEWFINDER FRAME

	1-451-208-21	DEFLECTION YOKE
	⚠1-464-168-22	MULTIPLIER
	⚠1-546-043-11	PICTURE TUBE 1 1/2-INCH, 40LB4
	1-934-936-11	CRT SOCKET WITH HARNESS
CN101	1-560-704-00	RECEPTACLE, 20P MALE
MIC1	8-814-163-00	MICROPHONE, C-2002A
PL101	1-518-337-00	LAMP, TALLY 12V 60mA
	1-517-077-00	HOLDER, LAMP
RV101	1-226-735-00	CARBON 2K "CONTR"
RV102	1-226-736-00	CARBON 250K "BRIGHT"
RV103	1-230-489-11	CARBON 20K "AUDIO"
S102	1-554-924-11	TOGGLE "AUDIO/FILTER"

7-3. EXPLODED VIEW

FRONT BLOCK



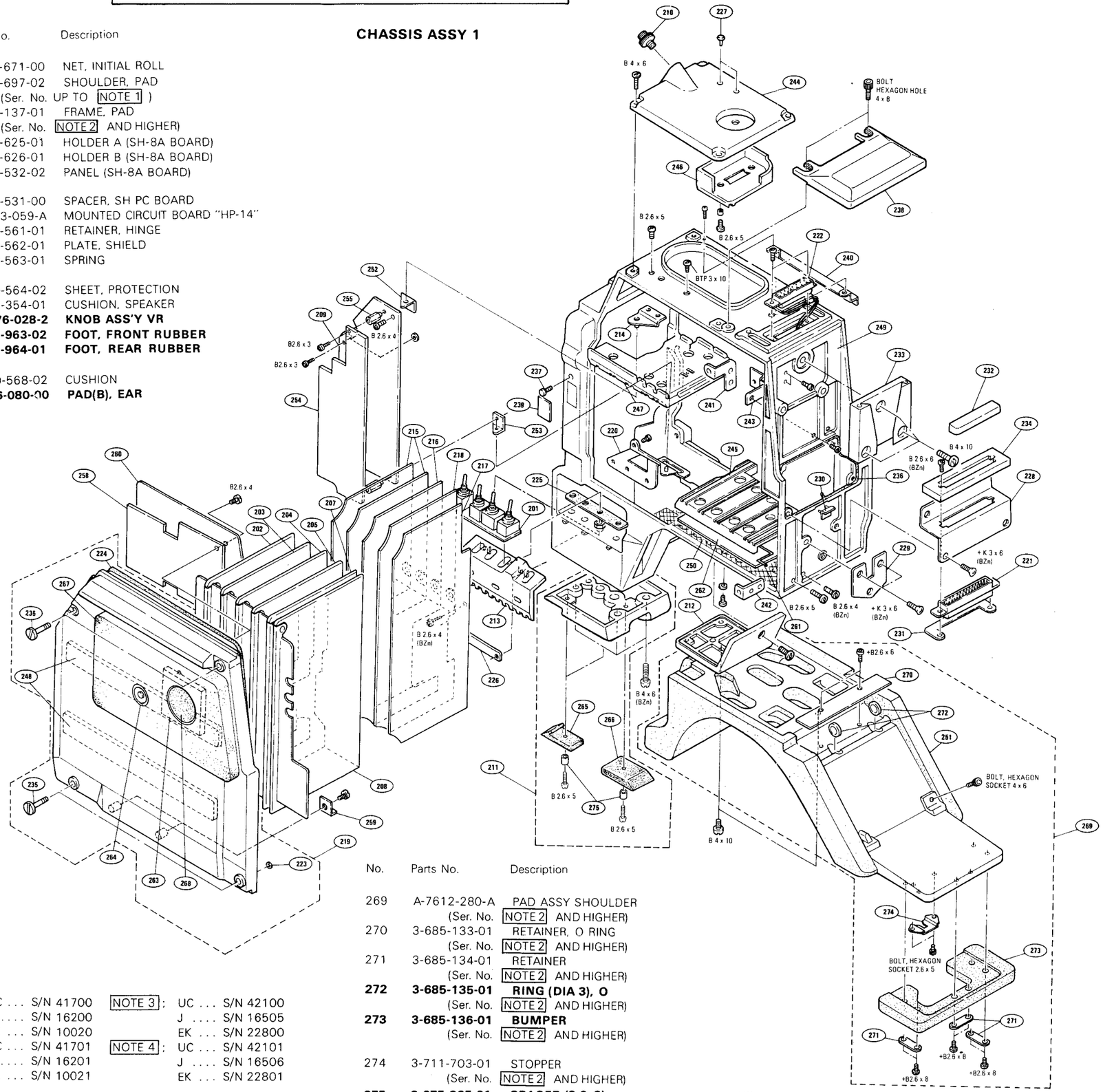
No.	Parts No.	Description
101	A-7513-057-A	MOUNTED CIRCUIT BOARD "PA-37"
102	A-7520-131-A	MOUNTED CIRCUIT BOARD "SW-77"
103	A-7520-132-A	MOUNTED CIRCUIT BOARD "SW-79"
104	X-3678-608-4	PANEL ASSY, FRONT
105	1-933-830-00	PICKUP TUBE SOCKET WITH HARNESS (R)
106	1-933-831-00	PICKUP TUBE SOCKET WITH HARNESS (G)
107	1-933-832-00	PICKUP TUBE SOCKET WITH HARNESS (B)
108	1-547-133-21	OPTICAL BLOCK (PY-08)
109	**3-672-221-00**	**PACKING, CONTROL**
110	**3-672-251-00**	**RING (M4), O**
111	3-672-253-11	RUBBER, CONDUCTIVE
112	**3-678-602-00**	**KNOB, FILTER**
113	**3-678-629-00**	**LEVER, MOUNT**
114	3-678-632-00	PACKING, KNOB
115	3-678-680-00	SCREW, PA
116	3-678-682-00	LID, SHIELD, PA
117	3-680-567-01	GUARD, SWITCH
118	3-678-689-00	CASE, SHIELD, PA
119	3-678-690-02	LABEL, PA BOARD

No.	Parts No.	Description
120	3-706-975-01	HOUSING, BIAS LIGHT
121	3-706-758-00	DISC, FILTER
122	**3-706-759-00**	**LAMP, BIAS LIGHT**
123	**3-706-760-00**	**SHUTTER**
124	**3-706-761-00**	**CAP**
125	**4-882-768-02**	**SCREW, BUTTON HEAD (M4×8)**
126		**OPTIONAL PART: PICKUP TUBE KIT (RGB) RKP2322AX**
127		**OPTIONAL PART: PICKUP TUBE (ALMIGHTY) RKP2322AW**
130	3-707-031-01	RING, MOUNT
131	3-707-187-01	PANEL FRONT
132	1-608-774-14	PRINTED CIRCUIT BOARD "PP-10"
133	3-707-274-01	SHAFT
134	3-707-275-01	GEAR, FLAT
135	**7-623-421-07**	**LW2.6, TYPE B**

No.	Parts No.	Description
201	A-7511-886-A	MOUNTED CIRCUIT BOARD "SW-78"
202	A-7511-887-A	MOUNTED CIRCUIT BOARD "VA-14"
203	A-7511-888-A	MOUNTED CIRCUIT BOARD "DF-17"
204	A-7511-889-B	MOUNTED CIRCUIT BOARD "IE-6" (FOR NTSC)
	A-7511-911-B	MOUNTED CIRCUIT BOARD "IE-6P" (FOR PAL)
205	A-7513-356-A	MOUNTED CIRCUIT BOARD "PR-75"
207	A-7513-068-A	MOUNTED CIRCUIT BOARD "EN-33" (FOR NTSC)
	A-7513-070-A	MOUNTED CIRCUIT BOARD "EN-33A" (FOR PAL)
⚠208	A-7511-892-A	MOUNTED CIRCUIT BOARD "PW-93"
209	A-7513-064-A	MOUNTED CIRCUIT BOARD "SH-8A"
210	X-3672-208-0	SUSPENSION ASS'Y (B)
211	**X-3675-905-0**	**SHOE, ASS'Y**
212	X-3678-601-2	LID (R) ASS'Y
213	X-3678-602-0	PLATE ASS'Y, CONTROL (Ser. No. UP TO NOTE3)
	X-3678-602-2	PLATE ASS'Y, CONTROL (Ser. No. NOTE4 AND HIGHER)
214	X-3678-603-0	BRACKET, (A) ASS'Y
215	X-3678-604-0	PLATE ASS'Y, SHIELD, IE
216	X-3678-605-0	PLATE ASS'Y, SHIELD, PR
217	X-3678-606-0	PLATE ASS'Y, SHIELD, PW
218	X-3678-607-0	PLATE ASS'Y, SHIELD, EN
219	X-3678-609-6	PLATE (RIGHT) ASS'Y, SIDE
220	X-3678-612-0	BRACKET, (B)ASS'Y
221	**1-562-112-21**	**RECEPTACLE 50P MALE**
222	**1-934-795-11**	**15 PIN CONNECTOR WITH HARNESS (CN102)**
223	**3-672-251-00**	**RING (M4), O**
224	3-672-253-11	RUBBER, CONDUCTIVE
225	3-672-254-00	SHEET, BRIND
226	3-672-266-00	NUT PLATE
227	**3-673-018-00**	**SCERW, BLIND**
228	3-675-902-00	BRACKET (A), CONNECTOR
229	3-675-924-00	STOPPER
230	3-675-927-00	PROTECTER
231	3-675-929-00	NUT (50P), PLATE
232	**3-675-930-00**	**CAP (50P PIN SIDE), DUST**
233	3-675-958-02	SHOE, C
234	3-675-976-00	CUSHION
235	**3-676-089-32**	**SCREW, LID**
236	**3-676-339-11**	**RUBBER**
237	**3-676-379-00**	**BUSHING (M5) SCREW**
238	3-685-128-02	COVER (2), CONNECTOR
239	3-678-607-00	LABEL, FILTER
240	3-678-608-02	BRACKET (A), PC BOARD
241	3-678-611-00	BRACKET (C)
242	3-678-612-00	BRACKET (D)
243	3-678-630-00	REINFORCEMENT (A), HN
244	3-678-633-03	COVER, TOP
245	3-678-636-00	RAIL (LOWER)
246	3-678-637-00	RAIL (LID)
247	3-678-638-00	RAIL (UPPER)
248	3-678-687-00	CUSHION, PC BOARD
249	3-678-641-02	CABINET

No.	Parts No.	Description
250	3-678-671-00	NET, INITIAL ROLL
251	3-678-697-02	SHOULDER, PAD (Ser. No. UP TO NOTE 1)
	3-685-137-01	FRAME, PAD (Ser. No. NOTE 2 AND HIGHER)
252	3-678-625-01	HOLDER A (SH-8A BOARD)
253	3-678-626-01	HOLDER B (SH-8A BOARD)
254	3-680-532-02	PANEL (SH-8A BOARD)
255	3-680-531-00	SPACER, SH PC BOARD
258	A-7513-059-A	MOUNTED CIRCUIT BOARD "HP-14"
259	3-680-561-01	RETAINER, HINGE
260	3-680-562-01	PLATE, SHIELD
261	3-680-563-01	SPRING
262	3-680-564-02	SHEET, PROTECTION
263	3-676-354-01	CUSHION, SPEAKER
264	**X-3676-028-2**	**KNOB ASS'Y VR**
265	**3-675-963-02**	**FOOT, FRONT RUBBER**
266	**3-675-964-01**	**FOOT, REAR RUBBER**
267	3-680-568-02	CUSHION
268	**3-676-080-00**	**PAD(B), EAR**

CHASSIS ASSY 1



No.	Parts No.	Description
269	A-7612-280-A	PAD ASSY SHOULDER (Ser. No. NOTE 2 AND HIGHER)
270	3-685-133-01	RETAINER, O RING (Ser. No. NOTE 2 AND HIGHER)
271	3-685-134-01	RETAINER (Ser. No. NOTE 2 AND HIGHER)
272	**3-685-135-01**	**RING (DIA 3), O** (Ser. No. NOTE 2 AND HIGHER)
273	**3-685-136-01**	**BUMPER** (Ser. No. NOTE 2 AND HIGHER)
274	3-711-703-01	STOPPER (Ser. No. NOTE 2 AND HIGHER)
275	**3-675-965-01**	**SPACER (2.6x2)**

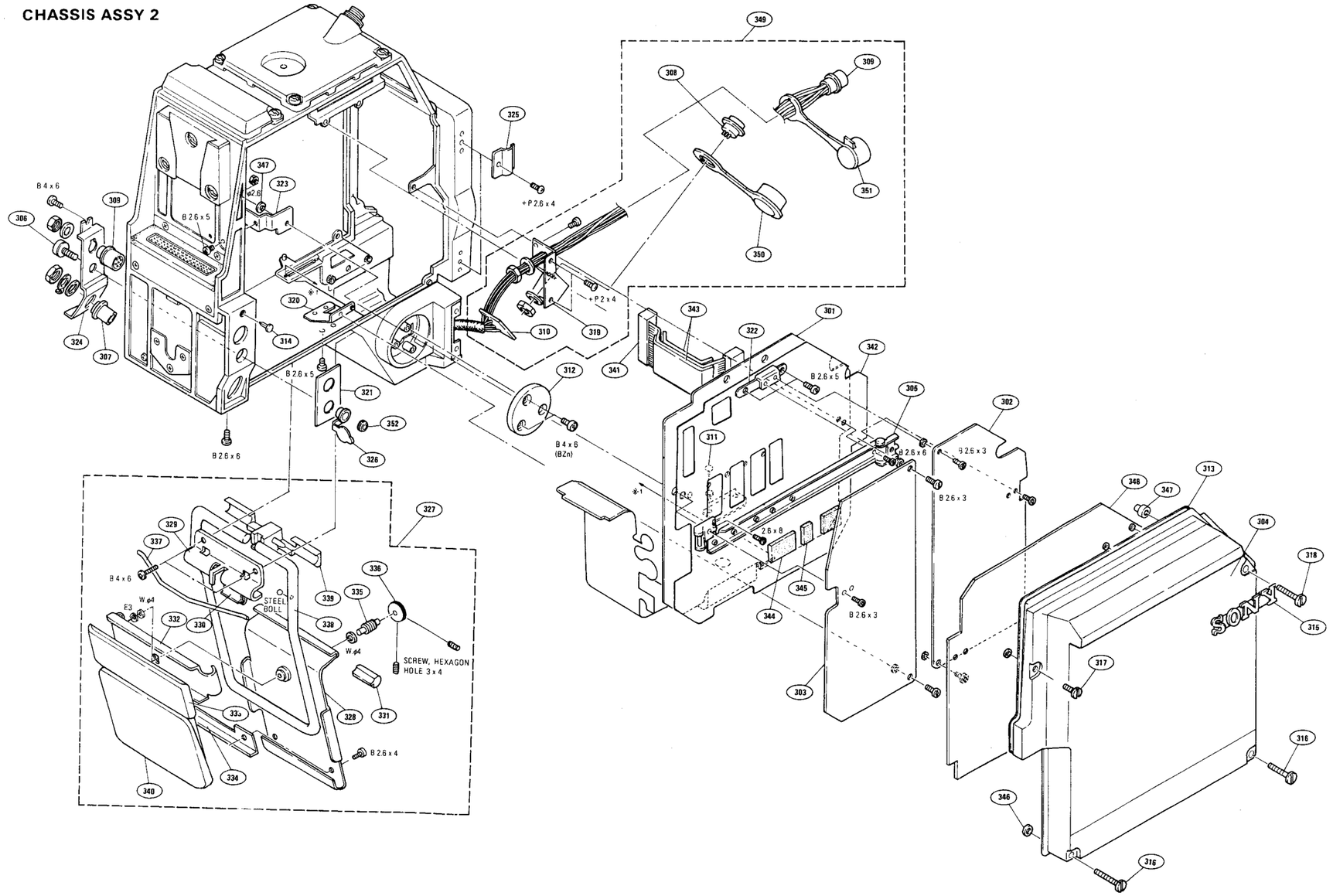
NOTE 1 : UC ... S/N 41700
J .... S/N 16200
EK ... S/N 10020

NOTE 2 : UC ... S/N 41701
J .... S/N 16201
EK ... S/N 10021

NOTE 3 : UC ... S/N 42100
J .... S/N 16505
EK ... S/N 22800

NOTE 4 : UC ... S/N 42101
J .... S/N 16506
EK ... S/N 22801

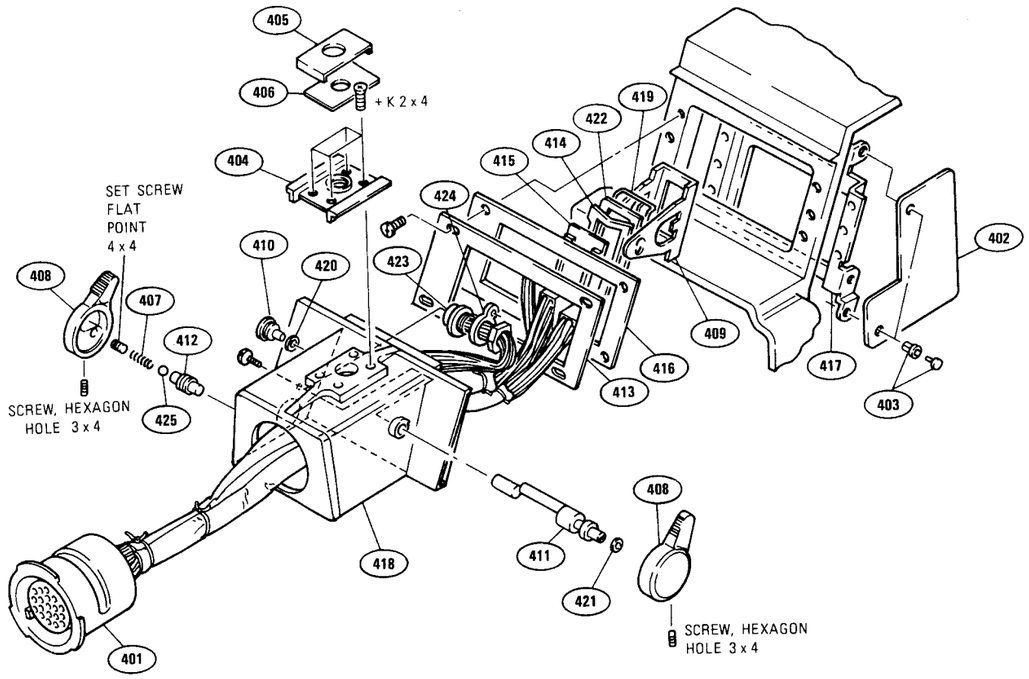
CHASSIS ASSY 2



No.	Parts No.	Description
301	A-7513-069-A	MOUNTED CIRCUIT BOARD "HN-30"
302	A-7513-046-A	MOUNTED CIRCUIT BOARD "AT-16"
	A-7513-071-A	MOUNTED CIRCUIT BOARD "AT-16N"
303	A-7511-895-B	MOUNTED CIRCUIT BOARD "SG-63" (FOR NTSC)
	A-7511-913-B	MOUNTED CIRCUIT BOARD "SG-63A" (FOR PAL)
304	X-3678-610-5	PLATE (LEFT) ASS'Y, SIDE
305	X-3678-611-0	REINFORCEMENT (B) ASS'Y, HN
306	**1-228-450-00**	**WIREWOUND 10K "PEDESTAL" RV1**
307	**1-561-781-21**	**RECEPTACLE, BNC "TEST OUT" CN14**
308	**1-562-221-00**	**RECEPTACLE, 12P FEMALE, "LENS" CN1**
309	**1-561-233-21**	**RECEPTACLE, 6P FEMALE, "LENS" CN103**
310	1-608-897-13	PRINTED CIRCUIT BOARD "CN-65" (UC ... S/N UP TO 10600 / J .... S/N UP TO 15300 / EK ... S/N UP TO 21000)
	1-608-897-14	PRINTED CIRCUIT BOARD "CN-65" (UC ... S/N 10601 AND HIGHER / J .... S/N 15301 AND HIGHER / EK ... S/N 21001 AND HIGHER)
311	**3-531-576-01**	**RIVET**
312	3-672 233-00	COVER
313	3-672-253-11	RUBBER, CONDUCTIVE
314	**3-673-018-00**	**SCREW, BLIND**
315	3-675-901-00	ENBLEM, SONY
316	**3-676-089-13**	**SCREW, LID (L 22.5)**
317	**3-676-089-22**	**SCREW, LID (L 11)**
318	**3-676-089-51**	**SCREW, LID (L 26)**
319	3-678-603-00	PLATE (LENS), CONNECTOR (UC ... S/N UP TO 10600 / J .... S/N UP TO 15300 / EK ... S/N UP TO 21000)
	3-678-603-03	PLATE (LENS), CONNECTOR (UC ... S/N 10601 AND HIGHER / J .... S/N 15301 AND HIGHER / EK ... S/N 21001 AND HIGHER)
320	3-678-604-00	BRACKET (B), PC BOARD
321	3-678-606-00	LABEL, CONNECTOR
322	3-678-609-00	BRACKET (C), PC BOARD
323	3-678-630-00	REINFORCEMENT (A), HN
324	3-678-683-00	PLATE, CONNECTOR (BNC)
325	3-678-684-00	HOLDER, CABLE
326	3-678-685-00	COVER
327	A-7612-207-A	PAD ASSY
328	X-3678-615-2	SUPPORT ASSY, PAD
329	3-680-507-00	BRACKET (A), STAY
330	3-680-508-00	PAD (A) STOPPER
331	3-680-509-00	PAD (B), STOPPER
332	3-680-510-00	BRACKET, STAY
333	3-680-511-02	PAD (B)
334	3-680-512-00	CLAMP, STAY
335	3-680-515-00	SCREW, STAY ADJUST
336	3-680-516-00	KNOB, ADJUST
337	3-680-517-00	SPRING
338	3-680-518-00	STAY, PAD
339	3-680-519-00	SUPPORT, STAY
340	3-680-520-02	PAD (A)
341	1-556-764-00	50P PLUG WITH HARNESS (SH)
342	1-609-560-13	SHIELD SHEET, HN-25
343	1-609-999-00	SHIELD SHEET, HN-27
344	3-680-522-00	CUSHION, SH BOARD
345	4-871-307-00	RUBBER (B)
346	**3-672-251-00**	**RING (M4), O**
347	3-680-529-00	BUSHING, INSULATING
348	3-680-569-01	SHEET, INSULATING
349	**1-933-829-13**	**CONNECTOR ASSY WITH CN-65 BOARD "LENS"**
350	**3-678-769-00**	**CAP** (UC ... S/N 10601 AND HIGHER / J .... S/N 15301 AND HIGHER / EK ... S/N 21001 AND HIGHER)
351	**3-685-115-01**	**CAP (6P), DROP PROTECTION** (UC ... S/N 10601 AND HIGHER / J .... S/N 15301 AND HIGHER / EK ... S/N 21001 AND HIGHER)
352	4-866-071-01	NUT, LOCK

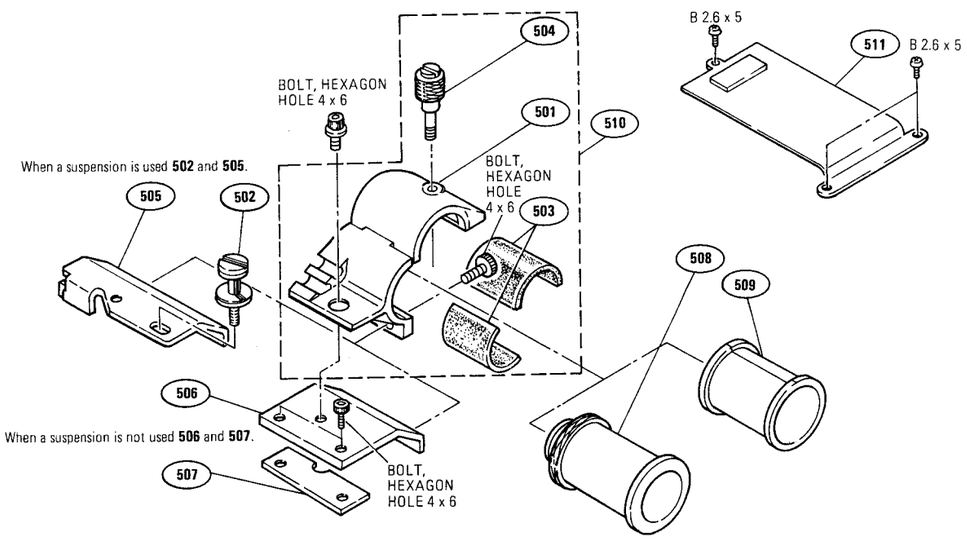
VF HOLDER MIC HOLDER

VF HOLDER



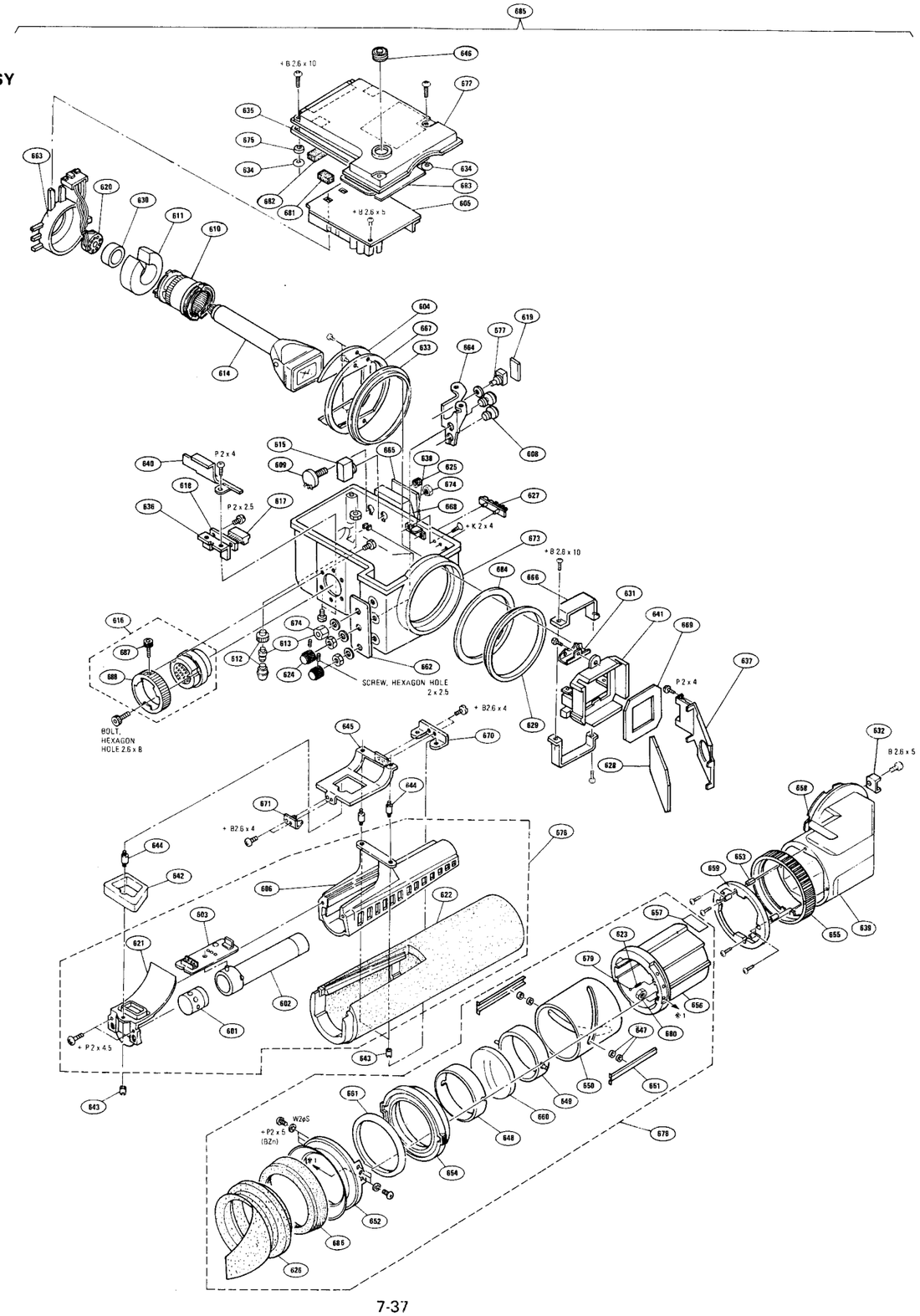
No.	Parts No.	Description
401	**1-561-812-00**	**CONNECTOR, 20P FEMALE (CN101)**
	1-934-868-11	**VF 20P CONNECTOR WITH HARNNES (CN101)**
402	A-7520-172-A	MOUNTED CIRCUIT BOARD "CN-9"
403	**3-531-576-00**	**RIVET**
404	**3-657-700-00**	**BRACKET, ACCESSORY**
405	2-277-468-01	PLATE, ORNAMENTAL, CAMERA
406	3-672-213-00	SHEET, ADHESIVE
407	**3-672-260-00**	**SPRING, COMPRESSION**
408	**3-673-046-11**	**LEVER, LOCK**
409	3-678-646-00	CLAMP
410	**3-680-566-01**	**SCREW (A), CLAMP**
411	3-678-649-02	SHAFT, CLAMP
412	3-678-650-00	SCREW (B), STOPPER
413	3-678-651-00	BASE, SLIDE
414	3-678-654-00	SUPPORT, SLIDE
415	3-678-655-00	SPACER (B), SLIDE
416	3-678-656-00	PLATE, ORNAMENTAL, SLIDE BLOCK
417	3-678-657-00	BRACKET (E)
418	3-678-658-05	HOLDER, VF
419	3-678-670-00	SPRING
420	**3-701-443-11**	**WASHER**
421	**3-701-444-21**	**WASHER, 6**
422	3-680-521-00	SPACER, (C)
423	**1-562-221-21**	**RECEPTACLE, 12P FEMALE (CN104)**
424	3-680-560-01	BRACKET, CONNECTOR
425	7-671-113-11	BALL, STEEL 3.5

MIC HOLDER



No.	Parts No.	Description
501	X-3664-502-3	HOLDER ASSY, MICROPHONE
502	X-3672-208-2	SUSPENSION ASSY (B) (FOR BVW-3A/3AP)
503	**3-657-643-04**	**CUSHION, MICROPHONE**
504	**3-657-657-00**	**SCREW (M5)**
505	3-680-578-01	PLATE (A), HOLDER, MICROPHONE (BVW-3A/3AP)
506	3-680-579-01	PLATE (B), HOLDER, MICROPHONE (BVP-3A/3AP)
507	3-680-580-01	SPACER (FOR BVP-3A/3AP)
508	3-680-581-01	HOLDER (A), MICROPHONE (FOR CRS-3P GRADE SUSPENSION)
509	3-680-582-01	HOLDER (B), MICROPHONE (FOR ϕ 19 MICROPHONE)
510	A-7401-113-B	HOLDER ASSY, MICROPHONE
511	3-680-577-01	COVER, MICROPHONE BLOCK

VF ASSY

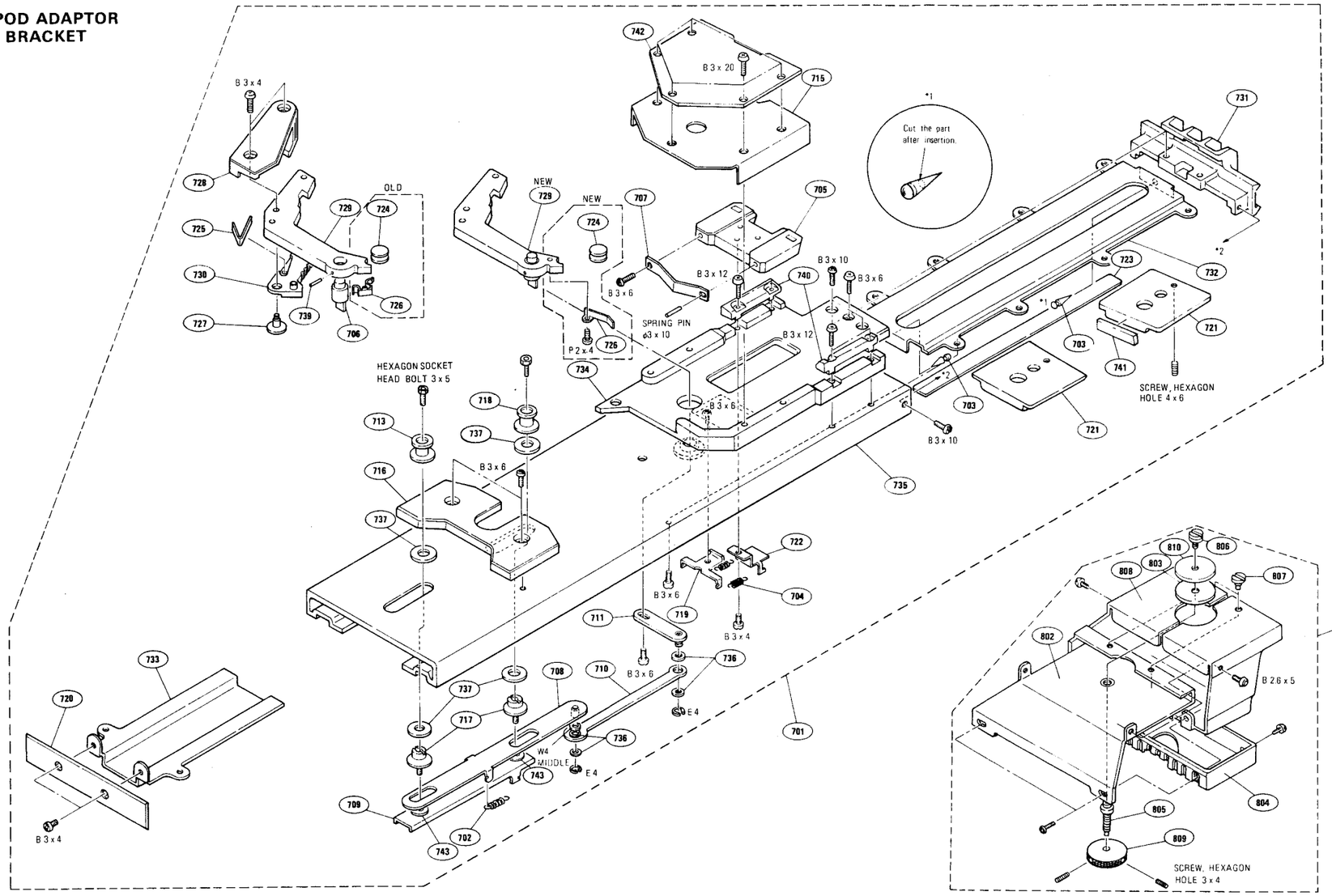


No.	Parts No.	Description
601	A-4511-007-A	UNIT ASSY
602	A-4511-008-A	TUBE ASSY PHASE
603	A-4518-180-A	MOUNTED CIRCUIT BOARD "MIC AMP"
604	A-7513-066-A	MOUNTED CIRCUIT BOARD "LP-28"
⚠605	A-7513-067-A	MOUNTED CIRCUIT BOARD "VF-22"
606	X-2532-701-0	CASE ASSY
607	**1-226-735-00**	**CARBON 2K (RV101)**
608	**1-226-736-00**	**CARBON 250K (RV102)**
609	**1-230-489-11**	**CARBON 20K (RV103)**
610	**1-451-208-21**	**DEFLECTION YOKE**
⚠**611**	**1-464-168-22**	**MULTIPLIER**
612	**1-517-077-00**	**HOLDER, LAMP**
613	**1-518-337-00**	**LAMP, TALLY**
⚠**614**	**1-546-043-11**	**PICTURE TUBE 1 1/2-INCH 40LB4**
615	**1-554-924-11**	**SWITCH,TOGGLE (S102)**
616	**1-560-704-00**	**RECEPTACLE, 20P MALE(CN103)**
617	1-561-816-00	RECEPTACLE, 6P FEMALE (CN1)
618	1-606-127-00	PRINTED CIRCUIT BORAD "MC-19"
619	1-612-778-11	PRINTED CIRCUIT BOARD "SW-80"
620	**1-934-936-11**	**SOCKET, PICTURE TUBE WITH HARNESS**
621	**2-532-711-00**	**REAR, COVER MICROPHONE**
622	**2-532-712-00**	**WINDSCREEN**
623	**3-302-492-00**	**SPRING, COMPRESSION**
624	**3-657-627-00**	**KNOB(2)**
625	**3-657-627-11**	**KNOB(2)**
626	**3-657-771-02**	**EYE CUP(2)**
627	**3-668-914-00**	**EMBLEM,SONY**
628	3-672-201-00	MIRROR
629	3-672-241-00	RING(B), SLEEVE
630	3-672-244-00	SPACER, MULTI
631	3-685-129-01	SPRING(N), LEAF, VF
632	3-672-246-00	STOPPER
633	3-672-247-00	RING(A), SLEEVE
634	**3-672-250-00**	**RING(M2.6), O**
635	3-672-253-11	RUBBER, CONDUCTIVE
636	3-672-283-00	BRACKET, MICROPHONE CHASSIS
637	3-672-287-00	HOLDER, MIRROR
638	3-672-288-00	BRACKET(B)
639	3-672-294-12	TUBE, VF
640	3-673-028-00	PLATE, VF SHIELD
641	3-680-599-03	SUPPORT(C), CRT
642	**3-675-985-00**	**CUSHION, MICROPHONE**
643	**3-675-986-00**	**SCREW**
644	**3-675-987-00**	**RUBBER, VIBRATION PROOF**
645	3-675-999-00	RETAINER, MICROPHONE
646	3-676-244-00	COVER, SWITCH
647	3-678-659-00	ROLLER
648	3-678-660-00	SUPPORT(A), LENS
649	3-678-661-00	HOLDER(B), LENS
650	3-678-662-00	TUBE, SLEEVE

No.	Parts No.	Description
651	3-678-663-00	GUIDE, ROLLER
652	3-678-664-00	HOLDER, EYE CUP
653	3-657-841-11	SPACER (DIA 2X4)
654	3-678-667-02	RING, DIOPTER
655	3-685-119-01	RING, HOLD
656	3-678-669-00	HOLDER, DIOPTER RING
657	3-680-413-00	SEAL, RING HOLDER
658	3-680-414-00	SEAL, VF TUBE
659	3-680-416-00	RING, FIXED
660	**3-680-417-00**	**LENS(B), VF**
661	3-680-418-01	RING, O (RUBBER)
662	3-680-590-01	NAME PLATE(B) (CONTROL)
663	3-680-591-01	SUPPORT(B), CRT
664	3-680-592-01	BRACKET(A)(VF)
665	3-680-593-01	NAME PLATE(A)(CONTROL)
666	3-680-594-01	CLAMP, CRT
667	3-680-595-01	SUPPORT, ROTARY
668	3-680-596-01	GUARD, SWITCH
669	3-680-598-00	PLATE, DISPLAY
670	3-681-701-00	RETAINER(B), MICROPHONE
671	3-681-702-00	RETAINER(A), MICROPHONE
672	3-685-101-12	COVER, VF
673	3-685-102-03	VF(MAIN)
674	**3-685-104-01**	**NUT, CONTROL**
675	**3-701-438-11**	**WASHER, 2.5**
676	**8-814-163-00**	**MICROPHONE C-2002A (WITH WINDSCREEN)**
677	**1-554-922-11**	**SWITCH, TOGGLE (S101)**
678	**A-7612-223-A**	**LENS ASSY, CONTACT**
679	**7-671-154-01**	**STENLESS BALL 2**
680	**7-622-205-05**	**NUT, M2 TYPE2**
681	**9-911-840-XX**	**RUBBER (B)**
682	**3-673-055-01**	**CUSHION**
683	3-685-116-01	INSULATOR, VF
684	3-685-118-01	SPACER, RING (UC ... S/N 10601 to 41270 J .... S/N 15301 to 15910 EK ... S/N 21001 to 21890)
685	A-7403-091-A	VF ASS'Y
686	**3-713-129-01**	**PACKING, RING** (UC ... S/N 41901 AND HIGHER J .... S/N 16301 AND HIGHER EK ... S/N 22601 AND HIGHER)

TRIPOD ADAPTOR
VTR BRACKET

TRIPOD ADAPTOR
VTR BRACKET



No.	Parts No.	Description
801	A-7612-206-A	VTR BRACKET ASSY, TRIPOD
802	X-3678-614-0	COVER (B) ASSY, BRACKET
803	3-678-698-00	DISK
804	3-678-699-00	COVER (A), BRACKET
805	3-680-502-00	SCREW, BRACKET
806	3-680-503-00	SCREW, STOPPER
807	3-680-504-00	PIN, CLAMP
808	3-680-506-00	BRACKET (A)
809	3-680-516-00	KNOB, ADJUST
810	3-680-534-00	WASHER (6.1×20)

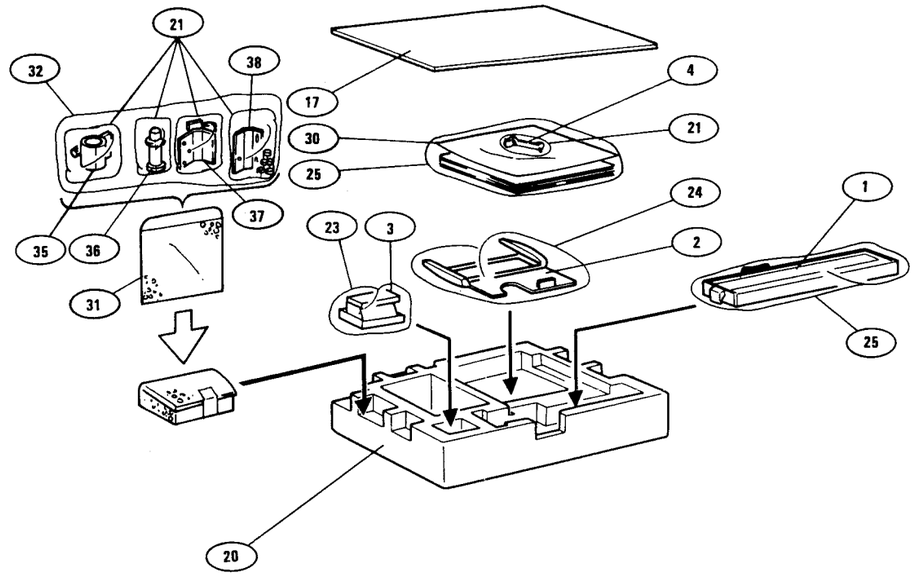
No.	Parts. No.	Description
741	3-687-123-01	CUSHION
	(UC ... S/N 10501 AND HIGHER	
	J .... S/N 15201 AND HIGHER	
	EK ... S/N 20901 AND HIGHER)	
742	3-687-124-01	RETAINER
	(UC ... S/N 10501 AND HIGHER	
	J .... S/N 15201 AND HIGHER	
	EK ... S/N 20901 AND HIGHER)	
743	**3-701-446-11**	**WASHER, POLY 8MM DIA (0.25T)**

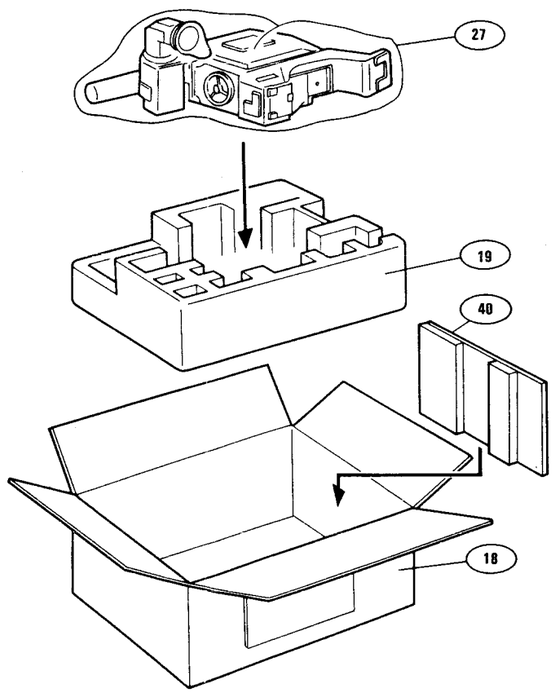
No.	Parts No.	Description
736	**3-701-441-11**	**WASHER, 4**
737	**3-701-446-01**	**WASHER, POLY 8MM DIA (0.13T)**
	(UC ... S/N 40101 AND HIGHER	
	J .... S/N 15501 AND HIGHER	
	EK ... S/N 21201 AND HIGHER)	
739	3-703-357-56	PIN, PARALLEL
	(UC ... S/N UP TO 41500	
	J .... S/N UP TO 16000	
	EK ... S/N UP TO 22000)	
740	3-678-783-00	GUIDE, T SHOE

No.	Parts No.	Description
701	A-7408-015-E	ADAPTOR ASS'Y TRIPOD
702	3-648-211-00	SPRING, TENSION
703	3-644-002-00	CUSHION, HANDLE
704	3-492-235-XX	SPRING, TENSION
705	3-676-392-00	BRACE, SLIDE
706	3-676-393-00	SHAFT, ROTARY
	(UC ... S/N UP TO 41500	
	J .... S/N UP TO 16000	
	EK ... S/N UP TO 22000)	
707	3-676-394-00	SPRING, LEAF
708	X-3676-101-1	PLATE (A) ASSY, SLIDE
709	X-3676-102-1	PLATE (B), ASSY, SLIDE
710	3-676-397-02	JOINT
711	X-3676-104-1	PLATE, ASSY, LOTARY
713	3-678-701-00	PIN (B), VTR
715	X-3676-100-1	LID ASSY, UPPER
716	3-678-704-00	SPACER
717	3-678-705-00	SHAFT, VTR PIN RETAINER
718	3-678-706-00	PIN (A), VTR
719	3-678-707-00	PLATE (B), FIXED, SPRING
720	3-678-708-00	CAP
721	3-678-709-01	BRACE, FITTING
722	3-687-137-01	PLATE (A), FIXED, SPRING
723	3-678-711-02	SHEET, REAR PLATE
724	3-678-712-00	ROLLER
	(U/C... S/N UP TO 41100	
	J .... S/N UP TO 15800	
	EK ... S/N UP TO 21890)	
	7-685-122-01	ROLLER
	(U/C... S/N 41101 AND HIGHER	
	J .... S/N 15801 AND HIGHER	
	EK ... S/N 21891 AND HIGHER)	
725	3-678-713-00	SPRING (L), LEAF
726	3-678-714-00	SPRING
	(U/C... S/N UP TO 41100	
	J .... S/N UP TO 15800	
	EK ... S/N UP TO 21890)	
	3-685-121-01	SPRING, LEAF
	(U/C... S/N 41101 AND HIGHER	
	J .... S/N 15801 AND HIGHER	
	EK ... S/N 21891 AND HIGHER)	
727	3-678-715-00	PIN, TRIGGER
728	3-678-716-00	KNOB, LEVER
729	3-678-717-02	LEVER, CLAMP
	(UC ... S/N UP TO 41500	
	J .... S/N UP TO 16000	
	EK ... S/N UP TO 22000)	
	X-3678-636-1	LEVER ASSY, CLAMP
	(UC ... S/N 41501 AND HIGHER	
	J .... S/N 16001 AND HIGHER	
	EK ... S/N 22001 AND HIGHER)	
730	3-678-718-00	LEVER, LOCK
731	3-678-719-00	BRACE, RETAINER
732	3-678-720-02	PLATE (A), REAR
733	3-678-721-02	PLATE (B), REAR
734	3-678-722-02	SPACER, T SHOE
735	X-3676-103-1	TABLE ASSY, ATTACHMENT

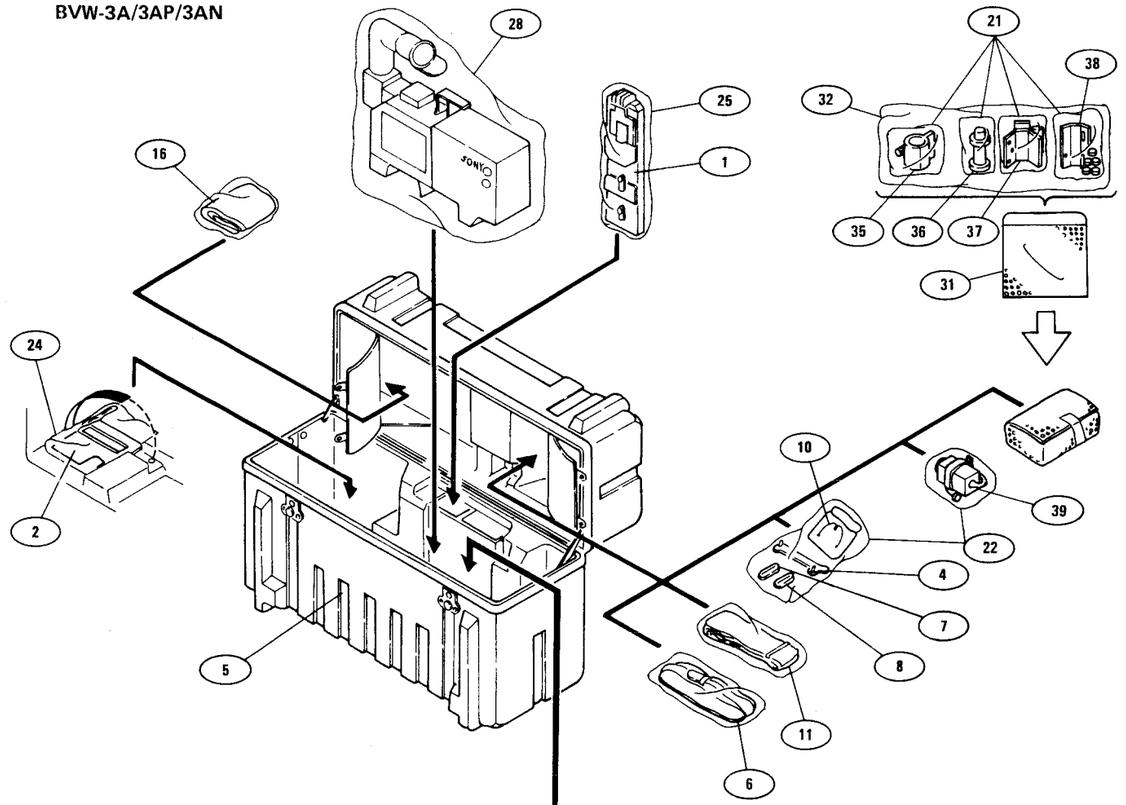
7-4. PACKING MATERIAL AND ACCESSORY (SUPPLIED) BVP-3A/3AP

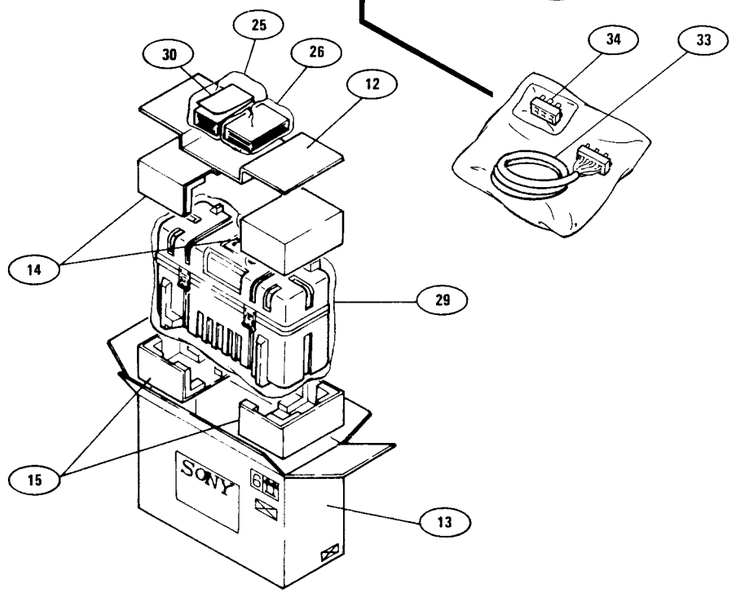
BVP-3A/3AP/3AN





BVW-3A/3AP/3AN





No.	Parts No.	Description
1	**STANDARD PRODUCTS**	**TRIPOD ADAPTOR, VCT-12**
2	**A-7511-898-A**	**BOARD EXTENDER "EX-24"**
3	A-7612-206-A	VTR BRACKET
4	**X-3678-613-0**	**BOARD EXTRACTOR**
5	X-3680-401-0	CARRYING CASE
	X-3680-406-1	CARRYING CASE (For BVW-3AN)
	A-7408-023-A	**LOCK ASSY** (without screw)
6	**3-685-111-01**	**STRAP (N), SHOULDER**
7	**3-676-269-00**	**CAP, DUST (FOR VTR 50P)**
8	**3-675-930-00**	**CAP, DUST (FOR CAMERA 50P)**
10	3-676-372-00	STRAP, BATTERY LID
11	3-678-732-00	BELT, CARRYING CASE
12	3-680-408-00	BOARD, TOP
13	3-680-409-00	CARTON, INDIVIDUAL
14	3-680-410-00	CUSHION, UPPER 2PCS
15	3-680-411-00	CUSHION, LOWER 2PCS
16	3-680-412-02	COVER, RAIN
17	3-680-523-00	SPACER
18	3-680-524-02	CARTON, INDIVIDUAL
19	3-680-570-02	CUSHION, LOWER
20	3-680-571-02	CUSHION, UPPER
21	**3-701-619-00**	**BAG, POLY (FOR BOARD EXTRACTOR)**
22	**3-701-621-00**	**BAG, POLY (FOR CAP, STRAP, EXTRACTOR)**
23	**3-701-622-00**	**BAG, POLY (FOR VTR BRACKET)**
24	**3-701-625-00**	**BAG, POLY (FOR BOARD EXTENDER)**
25	**3-701-632-00**	**BAG, POLY (FOR BVP-3A/3AP) OM MANUAL, TRIPOD ADAPTOR)**
26	**3-701-632-00**	**BAG, POLY (FOR BVV-1A MANUAL)**
27	**3-701-643-00**	**BAG, POLY (FOR BVP-3A/3AP)**
28	**3-701-646-00**	**BAG, POLY (FOR BVW-3A/3AP)**
29	**4-332-293-00**	**BAG, POLY (FOR CARRYING CASE)**
30	**3-680-660-00**	**AUTO CENTERING CHART**
31	**3-685-105-00**	**BAG, PROTECTION FOR HOLDER ASSY, MICROPHONE**
32	**HOLDER ASSY, MICROPHONE**	**(REFER TO EXPLODED VIEW PAGE No. 7-36)**
33	**1-557-660-11**	**6PIN TIME CODE CABLE**
34	**1-562-642-11**	**6PIN CONNECTOR FEMALE**
35	A-7401-113-A	HOLDER ASSY, MICROPHONE
	3-680-582-01	HOLDER (B), MICROPHONE
36	3-680-581-01	HOLDER (A), MICROPHONE
37	3-680-579-01	PLATE (B), HOLDER, MICROPHONE
	3-680-577-01	COVER, MICROPHONE BLOCK
	3-680-580-01	SPACER
38	3-680-578-01	PLATE (A), HOLDER, MICROPHONE
	7-721-130-20	**WRENCH, L (3.0MM)**
	7-688-004-02	**W4, SMALL**
	7-683-418-04	**BOLT, HEXAGON SOCKET 4x6**
	7-621-775-20	**SCREW +B 2.6x5**
	X-3672-208-1	SUSPENSION ASSY (B)
	1-562-642-00	**HOUSING 12P**
39	A-7401-028-A	BOX ASSY, REMOTE CONTROL (For BVW-3AN)
40	3-713-136-01	PLATE, SIDE
	(UC . . . S/N 41901 AND HIGHER J . . . . S/N 16501 AND HIGHER EK . . . S/N 22601 AND HIGHER)	

7-5. FIXTURE

Ref. No.	Parts No.	Description
	A-7511-898-A	**BOARD EXTENDER "EX-24"**
	X-3678-613-0	**BOARD EXTRACTOR**
	J-6029-140-A	PATTERN BOX, PTB-500 (90 to 240Vac)
	J-6029-140-2	DIFFUSION PLATE
	J-6029-140-3	LAMP
	J-6029-140-4	FILTER
	J-6029-140-5	SWITCH, POWER
	J-6029-140-6	SOCKET, LAMP
	J-6026-100-A	**RESOLUTION CHART**
	J-6026-130-A	**GRAY SCALE CHART**
	J-6021-890-A	**BALL PATTERN CHART**
	J-6026-120-A	**REGISTRATION CHART**
	J-6026-110-A	**MULTI BURST CHART**
	J-6196-080-A	**DC POWER CORD (BW-608)**

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